UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

AT-18J
REPLY TO THE ATTENTION OF:

Ms. Deborah Stone, Director
Cook County Department of Environmental Control
69 West Washington, Suite 1900
Chicago, Illinois 60602

Re: Technical Systems Audit Report

Dear ~~Ms. Stone~~ Deborah:

On November 19-21, 2013, the U. S. Environmental Protection Agency, Region 5, Air and Radiation Division's Air Monitoring and Analysis Section conducted a Technical Systems Audit (TSA) of the air monitoring program at the Cook County Department of Environmental Control (CCDEC), Technical Services Unit Operation, and Ambient Air Monitoring Section. The audit consisted of on-site meetings as well as visits to monitoring sites operated by the CCDEC.

The TSA was conducted in accordance with the procedures stipulated in 40 CFR Part 58, Appendix A, Section 2.5 and the Quality Assurance Handbook for Air Pollution Measurement Systems Volume II (QA Handbook Volume II), Section 15.3.

In keeping with TSA procedures, a draft copy of the TSA report was sent to your agency on March 25, 2014. CCDEC provided a response to that draft on May 5, 2014. EPA has considered those comments and presents the final report as an attachment to this letter. Please provide a response to the attached final report within thirty days of the date of this letter.

I would like to thank you and your staff for full cooperation in completing this audit. If you have any questions about this TSA, please contact Scott Hamilton, of my staff, at (312) 353-4775.

Sincerely,

Loretta Lehrman, Chief
Air Monitoring and Analysis Section

Enclosure

cc: Mike Papp, OAQPS

TECHNICAL SYSTEMS AUDIT REPORT - FINAL

COOK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL

MAY 27, 2014

PREPARED BY:

**Scott Hamilton, Anthony Ross, Bilal Qazzaz, Basim Dihu,
Chad McEvoy, James Burden (ESAT, Contractor to the EPA)**

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 5
AIR AND RADIATION DIVISION
AIR MONITORING AND ANALYSIS SECTION

EXECUTIVE SUMMARY

A technical systems audit (TSA) is an on-site review and inspection of a monitoring organization's ambient air monitoring program to assess its compliance with established regulations governing the collection, analysis, validation, and reporting of ambient air quality data. A systems audit of each monitoring organization within an U.S. Environmental Protection Agency (EPA) Region is performed every three years by a member of the Regional Quality Assurance (QA) staff. The purpose of a TSA is to ensure that required quality assurance activities are in place and being followed and to identify deficiencies or areas needing improvement. This TSA meets the requirements for EPA required by 40 CFR Part 58, Appendix A, Section 2.5 and the Quality Assurance Handbook for Air Pollution Measurement Systems Volume II (QA Handbook Volume II), Section 15.3.

The Cook County Department of Environmental Control (CCDEC) is responsible for the administrative and Quality Assurance of the ambient air monitoring in the geographical area of Cook County, IL. The TSA checklist was sent to the CCDEC prior to the EPA site visit on November 19-21, 2013. The CCDEC completed and returned the TSA checklist to EPA.

This document is a report on the findings made by the EPA while conducting the TSA on the CCDEC. During the TSA EPA Region 5 met with CCDEC staff and evaluated 5 air monitoring sites.

The audit team interviewed management and staff on specific aspects of the air monitoring program including network design, field operations, laboratory operations, data handling, quality assurance and quality control procedures. The site inspections consisted of an interview with the site operator (when possible), review of station and instrument logbooks, and evaluation of sites with respect to EPA siting criteria.

The TSA is one of the ways that EPA provides oversight to ensure that data collected by state and local agencies meets certain minimum data quality objectives. Other assessments such as network reviews and performance evaluations are also used to collect information on the overall quality of ambient air monitoring data. These assessments also enable agencies to identify and correct those program elements which may be adversely affecting the quality of ambient air data. The results of the TSA are summarized here and fully described in this report, along with recommended actions to address the findings. The specific actions to be taken by the CCDEC will be determined through negotiations between EPA and CCDEC and will be documented in a corrective action plan prepared by the CCDEC.

EPA's Air and Radiation Division, Air Monitoring and Analysis Section would like to thank the staff of CCDEC for their cooperation and assistance in completing the TSA.

The findings during the audit are summarized below. Additional details on these findings are identified and described in detail in Appendix I.

Findings:

1. Corrective actions were not completed from the previous TSA conducted in 2011.

Specifically, site 17-031-1003 probe is still greater than 15 meters high and therefore does not meet 40 CFR 58 Appendix E siting requirements.

2. CCDEC is not organized in a way that separates the QA and environmental data generation activities by two levels of management.
3. CCDEC is not operating under an approved Quality Management Plan (QMP).
4. CCDEC is not operating under an approved Quality Assurance Project Plan (QAPP).
5. SOPs were in various stages of development.
6. CCDEC did not report sufficient one-point quality control, annual performance evaluation, flow rate verifications, semi-annual flow rate audits, collocation detail, collocation summary, Lead PEP audits, PM2.5 PEP audits, and lead audit strip data to AQS for calendar years 2011, 2012, and first two calendar quarters of 2013.
7. CCDEC did not meet the data completeness reporting requirements of 75% for each site and monitored parameter for calendar year 2012, and first two calendar quarters of 2013.
8. Ozone certifications are conducted improperly.
9. Flow meter certifications are conducted improperly.
10. Operators are making adjustments to analyzers before completing QC checks to validate prior data.
11. The probe at 17-031-0076 is < 1 meter from the supporting structure.
12. PM2.5 FRM calibrations are not being documented.
13. Corrective actions are not explicitly stated in SOPs.
14. Site 17-031-0064 failed the quality control checks on 10/12/2012 (actual 0.081 vs indicated 0.075 indicated). AQS does not show data were invalidated as a result of this failed check.
15. Calibration factors for the 42i at 17-031-0076 did not match the documentation on the calibration sheet.
16. The internal slope on the 100E SN 140 at 17-031-0076 was found to be out of bounds and records show has been out of bounds for much of 2012 – 2013.
17. PM2.5 Design Flow values should be calculated on PM2.5 calibrations/audit/ verification forms.
18. CCDEC does not review their data (including meta data) and other QA related information in Air Quality System (AQS) quarterly reports (e.g., AMP 255 Report, AMP 430 Report).
19. Audit and calibration equipment are not separated or labeled.
20. QA and monitoring staff do not have adequate transportation to travel to and from monitoring sites.
21. CCDEC need training and experience in the area of making equipment repairs and troubleshooting problems with air monitoring equipment.
22. CCDEC does not maintain an inventory of transfer standards and certification dates and also does not have backup transfer standards available even though equipment is available in the lab to be certified as such.
23. Start times and end times are not recorded on field sheets documenting audit or QC check times.
24. There are unsecured tanks at site 17-031-0076 and the CCDEC laboratory.
25. CCDEC should certify meteorological monitoring sensors at least once a year.
26. CCDEC should conduct shelter temperature verifications on all air monitoring shelters at least once every six months with a NIST-traceable standard.

27. Zero air systems should not be placed in areas where the vibration of the system may interfere with ambient air analyzers.
28. All monitoring equipment should have documentation of all preventive maintenance conducted on system. Site logbooks should have consistent documentation.

PM2.5 Findings (Specific to the PM2.5 Weighing Laboratory):

1. Temperature and humidity measurement devices in the weighing environment are not certified or calibrated.
2. The laboratory is not conducting the required balance verifications of 300 and 500 mg using independent weights before and after each weighing session and after every 10 weight measurements taken.
3. The balances used are set to auto-calibrate and therefore the balance calibrates itself with internal weight standards whenever certain preset conditions exist. No records exist to document when these calibrations occur.
4. Chain of Custody procedures are inadequate.
5. Corrections should be identified with single strike-through, correction, signature and date.
6. Sample receiving temperature monitoring was not adequate.
7. Mean and standard deviations of temperature and humidity readings are not being calculated to document laboratory stability.
8. Analysts did not know the limits for field blanks or duplicates. Method blank limits are not posted in the logbook or in the weighing laboratories.
9. Analysts do not have adequate laboratory stands for securely moving filters from the equilibration area to the weighing area.

EPA appreciates CCDEC staff for their cooperation and assistance in completing this TSA and encourages CCDEC to improve their operations by implementing the recommendations identified in this report. According to the QA Handbook Volume II, Section 15.3.4 CCDEC has 30 days to respond to our findings in a corrective action plan.

INTRODUCTION

On November 19-21, 2013, the U.S. Environmental Protection Agency, Air and Radiation Division's Air Monitoring and Analysis Section conducted a TSA of the air monitoring program at the CCDEC office, lab and field sites.

40 CFR Part 58 Appendix A Section 2.5 requires TSA's of each ambient air monitoring organization be conducted at least every 3 years by the appropriate EPA Regional Office. EPA last conducted a TSA on September 19 – 22, 2011. There is one outstanding issue from that TSA **(See Finding #1).**

PARTICIPANTS

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 5

Basim Dihu, Environmental Engineer
Bilal Qazzaz, Quality Assurance Coordinator
Anthony Ross, Environmental Scientist
Chad McEvoy, Environmental Scientist
Scott Hamilton, Environmental Scientist
James Burden, Team Manager, TechLaw ESAT Region 5

COOK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL

Les Young, Technical Services Manager
Leo Flores, Air Monitoring Technician II
Marlene Miller, Air Monitoring Technician I
Roberto Torres, Air Monitoring Technician I
Niaoka Young, Sample Filter Analyst
Melody Carr, Sample Filter Analyst
Lynn Schmitt, Quality Assurance Auditor
Karen Moore-Wright, Chemical Analyst

AUDIT RESULTS DISSCUSSION

Prior to the TSA, the EPA e-mailed the TSA Audit Form to CCDEC. The form was completed by the CCDEC before the actual audit. During the visit, Basim Dihu, Anthony Ross, Bilal Qazzaz and Scott Hamilton also reviewed the TSA audit form with CCDEC representatives. Attached to this report is a copy of the completed TSA Audit Form (Appendix II).

Highlights of the four areas covered by the audit are listed below.

AUDIT RESULTS

The standard TSA form and checklist were completed prior to and during the audit, and they are attached to this report (Appendix II). Findings are summarized in the executive summary and

discussed in further detail in this report. This full report also covers details of the audit, and discusses findings and recommendations.

1. GENERAL/QUALITY MANAGEMENT

a) PROGRAM ORGANIZATION: (See Appendix III for the CCDEC organizational chart)

AGENCY DIRECTOR: Deborah Stone

AMBIENT AIR MONITORING (AAM) NETWORK MANAGER: Les Young

QUALITY ASSURANCE MONITORING MANAGER: Lynn Schmitt and Karen Moore-Wright (Field QA only)

QUALITY ASSURANCE AUDITORS: Lynn Schmitt and Karen Moore-Wright (Field QA only)

FIELD OPERATIONS SUPERVISOR / LEAD: Les Young

LABORATORY SUPERVISOR: Les Young

QUALITY ASSURANCE AIR LABORATORY MANAGER: Karen Moore-Wright/Melody Carr

DATA MANAGEMENT SUPERVISOR / LEAD: Les Young

b) FACILITIES

The CCDEC is located at the Maywood Courthouse, 1500 Maybrook Dr, Maywood, IL 60153. The air monitoring work is conducted in office space and laboratory (workshop) space. Although areas were observed to be organized and well kept and the facility appears to meet the needs of the air monitoring staff, the CCDEC laboratory is very cluttered and disorganized. **(See Finding #19 and #22)**

The facility appears to meet the needs of the air monitoring staff. There are unsecured tanks at site 17-031-0076 and the CCDEC laboratory which pose a safety hazard **(See Finding #24)**

c) INDEPENDENT QUALITY ASSURANCE AND QUALITY CONTROL

40 CFR Part 58 Section 2.2 (Independence of Quality Assurance) states "The monitoring organization must provide for a quality assurance management function- that aspect of the overall management system of the organization that determines and implements the quality policy defined in a monitoring organization's QMP. Quality management includes strategic planning, allocation of resources and other systematic planning activities (e.g., planning, implementation, assessing and reporting) pertaining to the quality system. The

quality assurance management function must have sufficient technical expertise and management authority to conduct independent oversight and assure the implementation of the organization's quality system relative to the ambient air quality monitoring program and should be organizationally independent of environmental data generation activities."

CCDEC is not organized in a way that separates the QA and environmental data generation activities by two levels of management. **(See Finding #2)**

CCDEC does not maintain an inventory of available and certified transfer standards. This causes major problems for field staff that need readily available transfer standards in order to conduct regular air monitoring work. The lack of an equipment inventory also makes it difficult for CCDEC to realize what equipment they are using versus what equipment they have available to use. CCDEC has newer transfer standards that were not in use in favor of much older equipment that was in use. **(See Finding #22)**

CCDEC is not conducting proper dilution system certifications. **(See Finding #9)**

The CCDEC ozone transfer standards are not verified properly. **(See Finding #8)** Calibrations and associated quality control checks (zero/precision/span) are then conducted using these transfer standards. Ozone transfer standards are to be certified in accordance with "Transfer Standards for Calibration of Air Monitoring Analyzers for Ozone, October 2013".

d) PLANNING DOCUMENTS (INCLUDING QMP, QAPP, AND SOPS)

The CCDEC has submitted a QMP for review and approval in 9/2013. **(See Finding #3)**

CCDEC has a Quality Assurance Project Plan (QAPP) dated 9/2013 which has been submitted to EPA for review. **(See Finding #4)**

CCDEC is in the process of revamping the QAPP and SOP documents. SOPs were in various stages of development. SOPs did not appear to be signed and approved by a QA officer. **(See Findings #3, 4, 5)**

e) GENERAL DOCUMENTATION POLICIES

Les Young is responsible for maintaining records for air monitoring data. All records are kept for at least 3 years. All logbooks are kept indefinitely. Paper and electronic records are secured either in a locked area or by password protection. The facility is in the basement of the Maybrook Courthouse and this building is secured by guards.

f) TRAINING

CCDEC has an official training program for staff. Les Young is responsible for maintaining the training records and is also responsible for maintaining an adequate training program. We discussed the need to have staff cross trained to prepare for

unanticipated absences or sudden loss of staff. CCDEC experienced a high turnover rate recently and has suffered a loss of institutional knowledge, skills and experience. EPA has been providing specific training to the CCDEC over the last year and CCDEC has been attending all offered trainings. Trainings have included classroom, field and lab trainings. CCDEC participates in the EPA Region 5 monthly State, local and Tribal conference calls. CCDEC attends the Regions Air Monitoring State Local and Tribal contacts meeting.

g) OVERSIGHT OF CONTRACTORS AND SUPPLIERS

CCDEC does not oversee contract employees. Equipment and supplies are specified as needed for FEM or FRM equipment.

h) CORRECTIVE ACTION

Some procedures are known and are implemented within the CCDEC for measurement quality objectives (MQO). SOP's do not define these corrective action limits for site operators to follow and therefore consistent corrective action limits have not been implemented. Operators do not know the corrective action limits and also did not demonstrate adequate knowledge of analyzer diagnostic parameters and the uses of these. Consistent and documented corrective actions should be incorporated into all SOP's for every parameter reported to the AQS. Copies of these SOP's should be kept at all monitoring sites and available to all monitoring staff. **(See Finding #13 and 16)**

i) QUALITY IMPROVEMENT

CCDEC acknowledges that not all corrective actions have been completed from the previous TSA conducted in 2011. Specifically, site 17-031-1003 probe is still greater than 15 meters high and therefore does not meet 40 CFR 58 Appendix E siting requirements. **(See Finding #1)**

CCDEC indicated that data quality suffered as a result of staff turnover. As a corrective action CCDEC requested training from EPA and has been participating in this training as well as continuing to develop a quality system. EPA acknowledges this effort.

Other improvements include purchasing new ozone monitors and purchasing new data telemetry system consistent with the IEPA system. CCDEC has also acknowledged the need to inventory and update gas dilution systems which they do not currently do. **(See Finding #22)**

j) EXTERNAL PERFORMANCE AUDITS

The agency participates in the National Performance Evaluation Program as required by 40 CFR Part 58, Appendix A Section 2.4. CCDEC and IEPA "self-implement" this program. The option of allowing for "federal implementation" funded by in-kind assistance from EPA is available. EPA recommends that CCDEC (and the IEPA) take advantage of this opportunity and allow for federal implementation. The national

program provides for a higher level of QA independence on the PM2.5 monitoring network. The Environmental Services Assistance Team (ESAT), contractor to the EPA, conducts Performance Evaluation Program (PEP) audits for PM2.5, PEP audits for lead (Pb) and National Performance Audit Program (NPAP) audits for nearly all other regulatory air monitoring programs nationwide.

2. NETWORK MANAGEMENT/FIELD OPERATIONS

a) NETWORK DESIGN

The CCDEC operates 15 air monitoring sites in Cook County, IL. A complete listing of these sites as well as the site information and monitor information sheets are included in the TSA checklist as Appendix II as well as in the updated siting sheets provided by CCDEC. Network siting is reviewed annually by the CCDEC. The date of the last review was in 2013 by Les Young.

The IEPA submits an annual network plan to EPA which includes all sites in CCDEC jurisdiction. The 2014 network plan was submitted by July 1, 2013 as required by 40 CFR Subpart B 58.10.

b) CHANGES TO THE NETWORK SINCE THE LAST AUDIT

The TSA checklist identified several changes that have been made to the network as a result of "IEPA Assessment". Of these changes 2 CO monitors were discontinued at sites 17-031-4002 and 17-031-6004. The CCDEC also added a Carbon Monitor at the request of EPA at site 17-031-0076. The EPA would like to thank the CCDEC for this effort.

c) PROPOSED CHANGES TO THE NETWORK

No changes were identified.

d) FIELD SUPPORT

Field operators visit sites 2 times per week. Overall field operation resources are adequate. 3 sites have manifolds in use. Manifolds are described as 3 inch glass. Manifolds are cleaned quarterly. Sampling lines are changed once a year.

i) Standard Operating Procedures (SOPs)
SOPs are written documents that give detailed instruction on how a monitoring organization will perform daily tasks such as field, laboratory and administrative duties. SOPs are a required element of a QAPP and are vital to the quality of any monitoring program. The SOPs should be based on the framework contained in "Guidance for Preparing Standard Operating Procedures" EPA QA/G-6.

The CCDEC presented SOPs for review by auditors. These SOPs appear to cover the majority of the work performed by CCDEC. However, the SOPs were not signed as reviewed or approved. **(See Finding #5)**

ii) Instrument Acceptance

A table listing the equipment in use at air monitoring stations is in the TSA checklist. All instruments were found to be Federal Reference or Equivalent Methods. Some instrumentation being used is very outdated. CCDEC uses equipment that is in some cases over 20 years old. The recent turnover has caused an overall lack of knowledge and experience with instrumentation. In some case newer instruments are available to replace the older equipment. However, CCDEC is still using the older equipment. **(See Finding #22)**

iii) Calibration

Calibration procedures were not found to be in accordance with 40 CFR Part 50, the analyzer operation/instruction manuals and the QA Handbook Volume II, Section 12. EPA observed mock calibrations and quality control checks at monitoring sites. Operators were interviewed on site. Operators were found to have limited knowledge of calibrations (specific procedures and overall knowledge of the task) for all parameters and were observed to be conducting improper calibrations for at least NOx. **(See Findings #8, 9, 10, 12, 13, 15, 16, 17, 19, 21, 23)**

iv) Repair

The agency has an air monitoring laboratory which is utilized for maintenance and repair. CCDEC maintains an inventory of spare instruments and parts for all instruments in order to minimize down-time and data loss. The inventory is unorganized. The laboratory/repair areas were found to be unorganized and need immediate attention. **(See Finding # 19, 22)**

v) Record Keeping

The agency does not maintain analyzer logbooks to document monitor performance and maintenance. Each instrument and piece of support equipment (with the exception of the instrument racks and benches) should have an Instrumentation Repair Log (either paper or electronic). The log should contain the repair and calibration history of that particular instrument. **(See Finding #28)**

Logbooks are located at each station. Documentation in logbooks was incomplete and inconsistent. **(See Finding #28)**

vi) Site Information and Monitor Information

The following table summarizes the sites visited. Completed site evaluation sheets are included in Appendix IV.

CCDEC 2013 Site Evaluation List				
Site Name	**Pollutants Measured**	**Site ID**	**Address**	**Comments**

Cicero	Ozone, Sulfur Dioxide, Nitrogen Dioxide	17-031-4002	1820 S. 51st, Cicero, Il	Meets siting requirements
Lemont	Ozone, Sulfur Dioxide	17-031-1601	729 Houston Ave. Lemont, Il	Meets siting requirements
ComEd	Ozone, Sulfur Dioxide, Nitrogen Dioxide, PM2.5, CSN, Organic Carbon, MET	17-031-0076	7801 S. Lawndale, Chicago, Il	Ozone probe did not meet the requirement of 1 meter distance from supporting structures per Part 58 App. E Section 2.0
Alsip Public Works	Ozone, PM2.5, and MET	17-031-0001	4500 W. 123RD ST.	Meets siting requirements
Summit	PM2.5	17-031-3301	60TH ST. & 74TH AVE.	Meets siting requirements

3. LABORATORY OPERATIONS

Laboratory Manager: Les Young
Laboratory Supervisor: Les Young
Quality Assurance Officer: Lynn Schmitt
Laboratory Staff involved in the TSA: Karen-Wright Moore, Lynn Schmitt, Melody Carr, Niaoka Young

The following is a list of laboratories that conduct air monitoring analysis for the CCDEC.

Pollutant Analysis	Laboratory
Pb Analysis	Medical Examiners Building
PM2.5	Maywood Lab

a) ROUTINE OPERATIONS

CCDEC has 2 laboratory facilities as well as 2 large rooms where air monitoring equipment repair and certifications are being conducted. This section of the report will focus on the metals analysis Laboratory at the Medical Examiner's Office. The PM2.5 weighing lab is included in the report as a separate sheet in Appendix II and in the findings in Appendix I.

b) LABORATORY QUALITY CONTROL

Laboratory standards were identified and were found to be within certification limits with the exception of the Relative Humidity and Temperature standards in the PM2.5 weighing operation. **(See PM2.5 Finding #1)**

On March 13, 2014 EPA requested that CCDEC complete the table below. CCDEC

has not provided a response.

Parameter	Location of Standards	Laboratory Standard	Recertification Date	Primary Standard
CO				
NO2				
SO2				
O3	**Maywood Lab**	**Maywood Lab**	**Dec 2012**	**EPA**
Weights	**Maywood Lab**	**Maywood Lab**	**Nov 2013**	**Troemner LLC**
Temperature				
Moisture				
Barometric Pressure	**Maywood Lab**	**Maywood Lab**	**Jan 2013**	**Novalynx Inc**
Flow	**Maywood Lab**	**Maywood Lab**	**Jan 2013**	**Bios International**
Other Flow Standard				
Lead	**Lab at ME Building**	**Lab at ME Building**	**Feb 2013**	**IEPA/Perkin Elmer**
Other	**Lab at ME Building**	**Lab at ME Building**	**Feb 2013**	**Fisher Scientific**

c) LABORATORY PREVENTIVE MAINTENANCE

CCDEC has service contracts for preventive maintenance and annual calibrations of laboratory instrumentation. Certificates for preventive maintenance and certifications are included in this report. Maintenance and calibration certificates were found to be up to date.

d) LABORATORY RECORD KEEPING

The CCDEC has record books for all analytical equipment (for Pb, PM2.5 and PM10 analysis). All samples are logged when they arrive from the field. Auditors observed logbooks at the laboratory. Log books were found to be adequate.

Chain of custody was discussed in detail on site. CCDEC has a chain of custody procedure revised in September 2013 to reflect guidance for EPA Quality Management Plan date 09/2013. CCDEC has copies of COC in all SOP documents as well as n the CCDEC QMP.

e) LABORATORY DATA ACQUISITION AND HANDLING

Data is entered into the appropriate program/spreadsheet in the Maywood Lab computers; reports are generated and submitted to the Technical Services Manager for review and verification of completeness. Data is then submitted to IEPA for review and additional

verification of completeness.

f) SPECIFIC POLLUTANTS

PM2.5 is covered in detail in a separate check sheet in Appendix I.

4. DATA AND DATA MANAGEMENT

Data Manager:	Les Young (Chris Price, IEPA)
Data Supervisor	Les Young
Quality Assurance Officers:	Lynn Schmitt and Karen Moore-Wright

a) DATA HANDLING

Calibration and precision data are reported to Lynn Schmitt and Karen Moore-Wright, who records data in a computer file and stores hard copy. Sample Filter weights data are reported to Niaoka Young who records data in computer file and stores logbook copy. TSP and laboratory analyses data are recorded in computer files by Melody Carr and Karen Moore-Wright. Reports are generated and stored by Les Young. All data is reviewed with Les Young prior to submitting to IEPA. All data are submitted to AQS by IEPA.

b) SOFTWARE DOCUMENTATION

DataEase is used to generate the reports that CCDEC transmit/submit to IEPA. IEPA then converts data to be reported to AQS. CCDEC is not aware of the software versions IEPA uses to submit their data.

c) DATA VALIDATION AND CORRECTION

CCDEC utilizes the QA Handbook Volume II, Appendix D (Validation Templates) for validating and correcting data. Les Young has authority to approve data corrections. IEPA has authority to validate and invalidate data.

d) DATA PROCESSING

CCDEC generates several air quality reports. CCDEC receives network completeness reports from IEPA.

Report Title	Distribution	Period Covered
Data Recovery Report	CCDEC Director, Deputy Director, IEPA	Monthly to CCDEC Quarterly to IEPA
PARS Report	CCDEC Director, Deputy Director, IEPA	Quarterly
Continuous Data Summary	CCDEC Director, Deputy Director, IEPA	Monthly

CCDEC is not aware of how often the data are submitted to AQS. Data (including meta data) are not reviewed quarterly to ensure that data submitted to IEPA are correctly entered into the AQS. **(See Finding #18)** All records are kept for at least 3 years. EPA observed the archived files to be maintained and in order.

e) INTERNAL REPORTING

The following reports are generated.

Report Title	Frequency
FRM Flow Audits	Semi-Annually
TSP Flow Audits	Semi-Annually
Continuous Monitor Audits	Annually
Gaseous Precision Checks	Weekly
Zero and Span Checks	Bi-weekly
FRM and TSP flow verifications	Monthly

f) EXTERNAL REPORTING

A summary of findings of data completeness is included in Appendix V.

APPENDICES

APPENDIX I - Detailed Audit Findings and Recommendations

APPENDIX II – Completed Technical Systems Audit Checklist (PM2.5 Weighing Laboratory Checklist INSERTED)

APPENDIX III – Organizational Chart (Omitted to save paper. Please see page 5 of the completed TSA checklist)

APPENDIX IV - Network Design
Site Evaluations
Calibration Sheets and other Example Forms (Omitted to save paper)

APPENDIX V- Data/Data Management
Precision and Accuracy Reports (AMP 255)
Data Completeness (AMP 430)
Field Blank Report (AMP 503)

APPENDIX I - Detailed Audit Findings and Recommendations

Finding #	1
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Corrective Action

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
Corrective actions were not completed from the previous TSA conducted in 2011. Specifically, site 17-031-1003 probe is still greater than 15 meters high and therefore does not meet 40 CFR 58 Appendix E siting requirements.
Discussion:
The probe must be located between 2 and 15 meters above ground level for all O_3 and SO_2 monitoring sites.
References:
40 CFR Part 58, Appendix E Section 2
Recommendation to Address Finding:
Move inlet probe to within 2-15 meters above the ground.

Finding #	2
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	General/Quality Management

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
CCDEC is not organized in a way that separates the QA and environmental data generation activities by two levels of management.
Discussion:
The CCDEC provides the air monitoring functions (calibrations, one-point quality control checks under 40 CFR Part 58 Appendix A Section 3.2.1, filter changes, site maintenance, data collection, data handling) and the CCDEC (under the same direct line manager) provides the QA functions (annual performance evaluations under 40 CFR Part 58 Appendix A Section 3.2.2, final data validation) for the CCDEC air monitoring Primary Quality Assurance Organization (PQAO). This arrangement does not meet the requirements of 40 CFR Part 58 Section 2.2.
References:
40 CFR Part 58 Appendix A Section 2.2
Recommendation to Address Finding:
Organize the CCDEC in a way that allows for the QA activities to report to an individual that is not also responsible for the air monitoring activities.

Finding #	3
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	General/Quality Management

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
CCDEC is not operating under an approved Quality Management Plan (QMP).
Discussion:
The QMP describes the quality system in terms of the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, assessing and reporting activities involving environmental data operations (EDO). The QMP must be suitably documented in accordance with EPA requirements, and approved by the appropriate Regional Administrator, or his or her representative. The quality system will be reviewed during the systems audits described in 40 CFR Part 58, Appendix Section 2.5. Approval of the recipient's QMP by the appropriate Regional Administrator or his or her representative, may allow delegation of the authority to review and approve the QAPP to the recipient, based on adequacy of quality assurance procedures described and documented in the QMP. The QAPP will be reviewed by EPA during systems audits or circumstances related to data quality.
References:
EPA Order 5360.1 A2 and 40 CFR Part 58, Appendix A
Recommendation to Address Finding:
The CCDEC QMP was submitted in 11/2013 and is awaiting review and approval by EPA.

Finding #	4
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	General/Quality Management

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
CCDEC is not operating under an approved Quality Assurance Project Plan (QAPP).
Discussion:
The QAPP is a formal document describing, in sufficient detail, the quality system that must be implemented to ensure that the results of work performed will satisfy the stated objectives. The quality assurance policy of the EPA requires every environmental data operation to have a written and approved QAPP prior to the start of the EDO. It is the responsibility of the monitoring organization to adhere to this policy. The QAPP must be suitably documented in accordance with EPA requirements.
References:
Critical - 40 CFR Part 58, Appendix A Section 1.2
Recommendation to Address Finding:
CCDEC has submitted a QAPP for review and has submitted a signature page with a date of 9/10/2013. However, since CCDEC did not have an approved QMP at that time the QAPP needed to be approved by EPA. A QMP gives the CCDEC the authority to self approve the QAPP. EPA is reviewing these documents and will make comments. CCDEC should ensure the QAPP includes all required elements.

Finding #	5
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	General/Quality Management

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
SOPs were in various stages of development. SOPs were not signed and approved by a QA officer.
Discussion:
SOPs are written documents that give detailed instruction on how a monitoring organization will perform daily tasks such as field, laboratory and administrative duties. SOPs are a required element of a QAPP and are vital to the quality of any monitoring program. SOPs should be considered "live documents" and should be updated continuously.
References:
QA Handbook Volume II Section 5.3; Guidance for Preparing Standard Operating Procedures EPA QA/G-6
Recommendation to Address Finding:
CCDEC should ensure that all SOPs are up to date and provide signed copies to all staff on a continuous basis.

Finding #	6
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Data and Data Management

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
CCDEC did not report sufficient one-point quality control, annual performance evaluation, flow rate verifications, semi-annual flow rate audits, collocation detail, collocation summary, Lead PEP audits, PM2.5 PEP audits, and lead audit strip data to AQS for calendar years 2011, 2012, and first two calendar quarters of 2013.
Discussion:
Monitoring agencies are required to perform and report the required quality assurance and quality control checks.
References:
40 CFR Part 58 Appendix A
Recommendation to Address Finding:
Review the sheets provided in this report and ensure that all QC checks are completed in the future.

Finding #	7
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Data and Data Management

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
CCDEC did not meet the data completeness reporting requirements of 75% for each site and monitored parameter for calendar year 2012, and first two calendar quarters of 2013. EPA requires 75% of all measurements be present in AQS to satisfy data completeness requirements as stipulated in 40 CFR Part 50.
Discussion:
EPA requires 75% of all measurements be present in AQS to satisfy data completeness requirements.
References:
40 CFR Part 58 and 50
Recommendation to Address Finding:
Review the sheets provided in this report and ensure that all data is properly meeting completeness requirements.

Finding #	8
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Independent Quality Assurance and Quality Control

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
Ozone certifications are conducted improperly.
Discussion:
Improperly certified transfer standards can have major impacts on data quality. The procedure for conducting proper O3 transfer standard certifications is outlined in the document "Transfer Standards for the Calibration of Ambient Air Monitoring Analyzers for Ozone". CCDEC has been "zeroing" the candidate transfer standards after each day of a 6X6 certification. Thereby voiding the previous day's linear regression. A 6X6 certification is required on all level 3 and greater transfer standards for use in regulatory monitoring for ozone. The 6X6 certification is conducted on 6 different days. The slope and intercept must not be changed between certifications.
References:
Transfer Standards for the Calibration of Ambient Air Monitoring Analyzers for Ozone, 2013
Recommendation to Address Finding:
EPA has been providing training to CCDEC at the Maywood laboratory. As a result, CCDEC is correcting the problem.

Finding #	9
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Independent Quality Assurance and Quality Control

X	Major Finding
	Minor Finding
	Recommendation

Finding:
Flow meter certifications are conducted improperly.
Discussion:
Improperly certified transfer standards can have major impacts on data quality. CCDEC was only certifying the gas flow controller in all their dilution systems. The air flow meter was not being certified. Certification should cover the entire range that the flow controller will be used in. Flow meters must not be used outside of the certified range.
References:
Recommendation to Address Finding:
EPA has been providing training at the CCDEC laboratory. As a result, CCDEC has corrected the problem.

Finding #	10
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
Operators are making adjustments to analyzers before completing QC checks to validate prior data.
Discussion:
Valid data are to be bracketed by a successful check at the beginning and at the end of a sampling period in order to document that the analyzer is functioning properly. A QC check must be done prior to making any adjustments to the analyzer in order to "validate" the data back to the most recent successful check. If the QC check is not completed prior to a calibration the operator cannot say with any certainty that the analyzer was functioning properly prior to making an adjustment. "If a QC check is made in conjunction with a zero or span adjustment, it must be made prior to such zero or span adjustments." - 40 CFR Part 58, Appendix A.
References:
40 CFR Part 58, Appendix A, Section 3.2.1.1, and the QA Handbook for Air Pollution Measurement System Volume II Section 12.0
Recommendation to Address Finding:
CCDEC must complete QC checks prior to making any adjustment to analyzers. QC checks must also be properly documented.

Finding #	11
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Network Design

X	Major Finding
	Minor Finding
	Recommendation

Finding:
The probe at 17-031-0076 is < 1 meter from the supporting structure.
Discussion:
Inlet probes must be greater than 1 meter from a supporting structure.
References:
40 CFR Appendix E Section 2
Recommendation to Address Finding:
Move probe to meet siting criteria.

Finding #	12
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Calibrations

X	Major Finding
	Minor Finding
	Recommendation

Finding:
PM2.5 FRM calibrations are not being documented at site 17-031-0076.
Discussion:
It is necessary to document all field activities especially activities paramount to data validation. Calibration information must be recorded in a logbook or on a calibration information sheet. As previously discussed in this report proper and complete documentation is essential to reporting data of known quality. The operator at 17-031-0076 could not produce calibration documentation for the PM2.5 FRM. It is unclear if other PM2.5 FRM calibrations are being documented at other sites.
References:
Recommendation to Address Finding:
Immediately begin documenting PM2.5 calibrations.

Finding #	13
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Planning Documents

	Major Finding
X	Minor Finding
	Recommendation

Finding:
Corrective actions are not explicitly stated in SOPs.
Discussion:
SOPs describe certain activities that are required to be conducted in order to report valid data. A table (similar to the Validation Template in the QA Handbook for Air Pollution Measurement System Volume II Appendix D) should be inserted in each SOP describing data validation criteria as well as what action is to be taken if these criteria are not met.
References:
QA Handbook for Air Pollution Measurement System Volume II Appendix D
Recommendation to Address Finding:
Insert a "Corrective Action Table" in each SOP. The table should include what action should be taken if the criteria are not met. For example, if a percent difference is observed to be >4.0% and <7.0% then all operators should take the same action (keep the monitor on "watch").

Finding #	14
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Independent Quality Assurance and Quality Control

	Major Finding
X	Minor Finding
	Recommendation

Finding:
Site 17-031-0064 failed the quality control checks for O3 on 10/12/2012 (actual 0.081 vs indicated 0.075 indicated). AQS does not show data were invalidated as a result of this failed check.
Discussion:
One point QC checks are required according to 40 CFR 58 Appendix A Section 3.2. The acceptance criteria are $\leq \pm 7.0\%$. This is listed as a Critical Criteria in the Ozone validation template and as such should result in data invalidation.
References:
40 CFR 58 Appendix A Section 3.2; QA Handbook for Air Pollution Measurement System Volume II Appendix D page 2 of 48 and the ozone template
Recommendation to Address Finding:
CCDEC should review the data collected subsequent to the QC check failure.

Finding #	15
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

	Major Finding
X	Minor Finding
	Recommendation

Finding:
Calibration factors for the 42i at 17-031-0076 did not match the documentation on the calibration sheet.
Discussion:
While reviewing the data sheets for QC checks and calibrations as well as looking at the 42i analyzer menu the auditor noted that the information for the factors did not match. The calibration factors are some of the most important diagnostics factors an operator should be tracking. When asked what the calibration factors are and what they mean the operator did not give an adequate response which would reflect that they do not have a full understanding of that information. Operators also exhibited less than adequate knowledge and understanding of the fundamentals of calibrations and checks on air monitoring equipment. Operators exhibited an overall lack of experience and organization in field operations.
References:
Recommendation to Address Finding:
CCDEC should continue to prioritize training for field staff. CCDEC should have field operators shadow a more experienced field operator (even from another agency).

Finding #	16
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

	Major Finding
X	Minor Finding
	Recommendation

Finding:
The internal slope on the 100E SN 140 at 17-031-0076 was found to be out of bounds and records show has been out of bounds for much of 2012 – 2013.
Discussion:
The API 100E calibration slope must be within 20% 1.000. This is clearly stated in the 100E manuals. As a calibration is conducted and the slope is approaching this limit the operator must be aware that the instrument is reaching an out of bounds limit and is not operating properly. Operators must be aware of these parameters on equipment they use. The calibration factors are one of the most important facts an operator should be tracking. The lack of this basic knowledge and prompt corrective action (i.e. repair and recalibration) could (and should) result in major data loss. Operators are to read the instrument manuals and be well versed in the operational criteria of the instruments they are responsible for. All API instruments have a table in the manual which clearly states what the acceptable limits are for each test function. The test functions are easily read from the front panel display.
References:
API Manual 100E (and others)
Recommendation to Address Finding:
Operators must read the instrument manuals and show more effort in understanding basic necessities of achieving valid data. CCDEC should include the Test function sheets to be completed as part of the normal site QC checks. This provides a paper trail for what the test functions read and that they are within acceptable limits.

Finding #	17
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

	Major Finding
X	Minor Finding
	Recommendation

Finding:
PM2.5 Design Flow values should be calculated on PM2.5 calibrations/audit/verification forms.
Discussion:
2 comparisons must be done in order to validate that a flow is meeting the PM2.5 FRM design requirements. The first comparison is the standard flow versus the monitor reading flow. This must not exceed 4% difference. The second comparison is the standard flow versus the design flow rate of 16.67. This must not exceed 5% difference. CCDEC was not making the design flow rate
References:
40 CFR 50 Appendix L Sections 9.2.5 and 7.4.3.1, 40 CFR 58 Appendix A Sections 3.2.3 and 3.3.2, Quality Assurance Handbook for Air Pollution Measurement Systems Volume II Appendix D
Recommendation to Address Finding:
Begin making the required comparisons

Finding #	18
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Data and Data Management

	Major Finding
	Minor Finding
X	Recommendation

Finding:
CCDEC does not review their data (including meta data) and other QA related information in Air Quality System (AQS) quarterly (e.g., AMP 255 Report, AMP 430 Report).
Discussion:
IEPA is responsible for inputting all of CCDEC data into AQS. CCDEC needs to review data entered in AQS, so that if a problem occurred, corrective action could be taken. CCDEC is ultimately responsible for the data.
References:
Recommendation to Address Finding:
AQS should be reviewed quarterly to ensure that all of CCDEC data, including QA data, are in AQS.

Finding #	19
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	General / Quality Management

	Major Finding
	Minor Finding
X	Recommendation

Finding:
Audit and calibration equipment are not separated or labeled.
Discussion:
Labeling ensures that calibration and audit equipment are not used interchangeable.
References:
Recommendation to Address Finding:
Label all equipment with certification stickers which clearly identify the equipment as used for audits or calibrations (and QC checks).

Finding #	20
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Facilities

	Major Finding
	Minor Finding
X	Recommendation

Finding:
QA and monitoring staff do not have adequate transportation to travel to and from monitoring sites.
Discussion:
CCDEC does not provide all employees with transportation to and from field sites for QA or monitoring work.
References:
Recommendation to Address Finding:
CCDEC should provide vehicles for its staff since an essential part of this work involves travelling to and from sites.

Finding #	21
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Training

	Major Finding
	Minor Finding
X	Recommendation

Finding:
CCDEC need training and experience in the area of making equipment repairs and troubleshooting problems with air monitoring equipment.
Discussion:
Field technicians need to have continued training to acquire adequate knowledge skills and abilities to conduct air monitoring work in a manner that minimizes data loss. Much of the skills needed is experienced on the job and therefore is difficult to quickly learn. EPA understands that CCDEC has suffered losses of institutional knowledge.
References:
Recommendation to Address Finding:
CCDEC should continue to prioritize training for field staff.

Finding #	22
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

[ ] Major Finding
[ ] Minor Finding
[X] Recommendation

Finding:
CCDEC does not maintain an inventory of transfer standards and certification dates and also does not have backup transfer standards available even though equipment is available in the lab to be certified as such.
Discussion:
Each monitoring person should have enough equipment to complete audits and calibrations. The laboratory should also have spares on hand to cover breakdowns. Operators should be responsible for properly maintaining their equipment and for ensuring that they have properly certified equipment. Furthermore, the laboratory should be organized in a way that separates QA work and monitoring repair work. Areas should be labeled and kept neat. Tools, fittings, spare parts, lines, and other ancillary monitoring equipment should be inventoried and kept in an orderly fashion.
References:
Recommendation to Address Finding:
Institute a tracking system where equipment such as dilution systems or ozone transfer standards undergoes a continuous certification. The laboratory should have separate space for certifications and equipment repairs. The CCDEC should clean and organize their laboratory spaces immediately.

Finding #	23
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

	Major Finding
	Minor Finding
X	Recommendation

Finding:
Start times and end times are not recorded on field sheets documenting audit or QC check times.
Discussion:
Data are invalidated during QC checks, audits or calibrations. It is best practice to record the exact time that an operator begins and ends the instrument check or calibration. An overall lack of proper and complete documentation was observed at the field sites. Documentation is paramount to reporting valid data to AQS. Without proper and complete documentation the validity of data cannot be known.
References:
Recommendation to Address Finding:
CCDEC must record the start time and end time of the QC checks, audits or calibrations.

Finding #	24
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

	Major Finding
	Minor Finding
X	Recommendation

Finding:
There are unsecured tanks at site 17-031-0076 and the CCDEC laboratory.
Discussion:
References:
Recommendation to Address Finding:
Secure your tanks at all times.

Finding #	25
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Calibration

	Major Finding
	Minor Finding
X	Recommendation

Finding:
CCDEC should certify meteorological monitoring sensors at least once a year.
Discussion:
MET sensors are highly sensitive scientific instruments. The performance of the sensors can only be known if they are checked against known standards periodically. It was unclear when the last time the CCDEC MET sensors were certified.
References:
Quality Assurance Handbook for Air Pollution Measurement Systems Volume IV
Recommendation to Address Finding:
EPA recommends annual recertification of sensors.

Finding #	26
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

[ ] Major Finding
[ ] Minor Finding
[X] Recommendation

Finding:
CCDEC should conduct shelter temperature verifications on all air monitoring shelters at least once every six months with a NIST-traceable standard.
Discussion:
Shelter temperatures are required to stay within a specified range (in most case between 20-30C) in order for the analyzer to be operating under the same conditions under which it was test for federal equivalency.
References:
Quality Assurance Handbook for Air Pollution Measurement Systems Volume II, Appendix D
Recommendation to Address Finding:
Conduct and document temperature comparisons in the field during biweekly QC checks and audits. Add a space to document this on the QC check/audits sheets.

Finding #	27
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Field Operations

	Major Finding
	Minor Finding
X	Recommendation

Finding:
Zero air systems should not be placed in areas where the vibration of the system may interfere with ambient air analyzers.
Discussion:
CCDEC places zero air generators on bench tops where air monitors are also placed. The zero air generators cause vibration on the bench top and could affect monitor readings.
References:
Recommendation to Address Finding:
Place zero air generators on floor.

Finding #	28
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	Repair

[ ] Major Finding
[ ] Minor Finding
[X] Recommendation

Finding:

All monitoring equipment should have documentation of all preventive maintenance conducted on system. Site logbooks should have consistent documentation.

Discussion:

Electronic and mechanical equipment require regular upkeep and maintenance to ensure that it is operating properly. All air monitors, zero air generators, gas dilution systems and other equipment used in air monitoring requires maintenance. The maintenance required is outlined in the equipment manual and should be documented.

11.2.3 Instrument Logs and Site Logs
Each instrument and piece of support equipment (with the exception of the instrument racks and benches) should have an Instrumentation Repair Log (either paper or electronic). The log should contain the repair and calibration history of that particular instrument. Whenever multipoint verification/calibration, instrument maintenance, repair, or relocation occurs, detailed notes are written in the instrumentation log. The log contains the most recent multipoint certification/calibration report, a preventive maintenance sheet, and the acceptance testing information or reference to the location of this information. If an instrument is malfunctioning and a decision is made to relocate that instrument, the log travels with that device. The log can be reviewed by staff for possible clues to the reasons behind the instrument malfunction. In addition, if the instrument is shipped to the manufacturer for repairs, it is recommended that a copy of the log be sent with the instrument. This information helps non-agency repair personnel with troubleshooting instrument problems. Improper recording of instrument maintenance can complicate future repair and maintenance procedures. The instrument log should be detailed enough to determine easily and definitively which instrument was at which site(s) over any given time period. If a problem is found with a specific instrument, the monitoring staff should be able to track the problem to the date it initially surfaced and invalidate data even if the instrument was used at multiple sites.

References:

Quality Assurance Handbook for Air Pollution Measurement Systems Volume II Section 11.2.3

Recommendation to Address Finding:

Implement an instrument maintenance/repair logging system. Implement a site log procedure where documentation is consistent for each site and each pollutant.

Finding #	PM2.5 Finding 1
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:

Temperature and humidity measurement devices in the weighing environment are not certified or calibrated.

Discussion:

PM2.5 filters are highly affected by temperature and humidity and therefore these environmental conditions in the weighing area must be monitored. Filters must be conditioned at the same conditions (humidity within ±5 percent RH) before the pre and post sampling weighings. Mean RH must be held between 30 and 40 percent, with a variability of not more than ±5 percent over 24 hours. However, where it can be shown that the mean ambient RH during sampling is less than 30 percent, conditioning is permissible at a mean RH within ±5 percent RH of the mean ambient RH, but in no case less than 20 percent RH. Mean temperature should be held between 20 and 23 EC, with a variability of not more than ±2 EC over 24 hours. RH and temperature should be measured and recorded on a continuous basis during filter conditioning (either by a recording hygrothermograph or by electronic instruments).

Equipment in use:
Supco Model #CR-TH2
Fisher Thermohygro
Extech Psychiometer SN#9938518

The three different temperature/humidity recording devices had different readings. When checked concurrently the Extech read 37% relative humidity (RH), the Fisher read 36%RH and the Supco read 40%RH on the digital readout, but the analog chart pen was recording 31%RH at the same time. While all of these reading were within the 30-40% RH criteria, none of these devices had been calibrated in the last year. When asked what would be done if one device read out and the other was in, no clear procedure was known.

References:

Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. II, Part II 2.12–PM Reference/Class I Equivalent Methods Section 7.0 and Table 3-2; Quality Assurance Handbook for Air Pollution Measurement Systems Volume II Appendix D; 40 CFR 50 Appendix L Section 8.2

Recommendation to Address Finding:

Research appropriate RH and Temperature devices. Procure appropriate devices and immediately begin measuring and logging RH and Temperature in the filter weighing environment.

One temperature and humidity monitor device should be designated as primary and one should be a secondary backup. The SOP should be updated to include information about when the instruments should be calibrated and what should be done if the temperature and/or humidity reading is out of range, or if the readings disagree (one or more either in/out of range and the readings disagree).

Finding #	PM2.5 Finding 2
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
The laboratory is not conducting the required balance checks of 300 and 500 mg using independent weights before and after each weighing session and after every 10 weight measurements taken.
Discussion:
Rezeroing and rechecking weights documents the balance repeatability. Balance checks are to be properly documented in a logbook. Two separate sets of mass reference standards are recommended. Working calibration standards should be used for routine filter weighing and kept next to the microbalance in a protective container. Laboratory primary standards should be handled very carefully and should be kept in a locked compartment. The working standards' masses should be verified against the laboratory primary standards every 3 to 6 months to check for mass shifts associated with handling or contamination. The verified values of the working standards as measured relative to the laboratory primary standards should be recorded in a laboratory QC notebook and used to check the calibration of the microbalance. If multiple microbalances are being used, all working standards should be verified at the same time to ensure that all gravimetric measurements are intercomparable.
References:
Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. II Section 10; Quality Assurance Handbook for Air Pollution Measurement Systems 2.12 Sections 4.3 and 7.3
Recommendation to Address Finding:
Immediately implement a balance check program using the appropriate certified weights.

Finding #	PM2.5 Finding 3
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:

The balances used are set to auto-calibrate and therefore the balance calibrates itself with internal weight standards whenever certain preset conditions exist. No records exist to document when these calibrations occur.

Discussion:

Balances are required to be calibrated every weighing session using certified working standards and per the manufacturers' recommendation. At the beginning of the weighing session the analysts must conduct a calibration using the working standards. Balance checks are then required every 10^{th} filter. The balance checks document that the calibration is still valid and that the balance is still reading within specifications. If additional balance calibrations are being conducted (i.e. automatic calibrations) during weighing sessions the analyst must document this and conduct balance checks with the working standards in order to document that the balance is able to weigh the working standards to within 3.0 µg.

An analytical microbalance is required to weigh the sample filters. Its capacity should be adequate to weigh the sample filters (typically 100 to 200 mg). It must have sufficient room to weigh the type and size of filters used (i.e., 46.2-mm diameter). The microbalance must have a minimum readability of ±1 µg and should have a repeatability of 1 µg. Readability is the smallest difference between two measured values that can be displayed by the microbalance.
Repeatability is a measure of the ability of a microbalance to display the same result in repetitive measurements of the same weight under the same measurement conditions. **Note**: The precision of mass measurements for unexposed filters based on replicate weighings will be greater than the microbalance's repeatability. The balance must be calibrated at installation and checked immediately before each weighing session.

References:

Quality Assurance Handbook for Air Pollution Measurement Systems 2.12 Sections 4.3 and 7.3; Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. II Section 10 and Appendix D

Recommendation to Address Finding:

Stop using the auto calibrate function on the balance. Begin using certified working standards for weighing session calibration and balance checks. Document all activities.

Finding #	PM2.5 Finding 4
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

X	Major Finding
	Minor Finding
	Recommendation

Finding:
Chain of Custody procedures are inadequate.
Discussion:
Chain-of-custody (COC) should start in the weighing laboratory when the initial weighing is completed. In order to use the results of a sampling program as evidence, a written record must be available listing the location of the samples at all times. This is also an important component of good laboratory practices. The COC record is necessary to legally demonstrate that the integrity of samples has been maintained. Without it, one cannot be sure that the samples and sampling data analyzed were the same as the samples and data reported to have been taken at a particular time. Procedures may vary, but an actual COC record sheet with the names and signatures of the relinquishers/receivers works well for tracking physical samples. The samples should be handled only by persons associated in some way with the monitoring program. A good general rule to follow is "the fewer hands the better," even though a properly sealed sample may pass through a number of hands without affecting its integrity. Each person handling the samples must be able to state from whom and when the item was received and to whom and when it was delivered. A COC form should be used to track the handling of the samples through various stages of storage, processing, and analysis at the laboratory. It is recommended practice to have each person who relinquishes or receives samples sign the COC form for the samples.
References:
Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. II Section 8.2
Recommendation to Address Finding:
Begin the COC at the laboratory and ensure that custody is maintained as described in the Quality Assurance Handbook for Air Pollution Measurement Systems.

Finding #	PM2.5 Finding 5
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

[X] Major Finding
[ ] Minor Finding
[ ] Recommendation

Finding:
Corrections should be identified with single strike-through, correction, signature and date.
Discussion:
Corrections were being done with a cross out only. Any corrections should be crossed out with a single line and dated and initialed by the person making it.
References:
Recommendation to Address Finding:
All cross outs in logbooks should be dated and initialed at a minimum.

Finding #	PM2.5 Finding 6
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

	Major Finding
X	Minor Finding
	Recommendation

Finding:
Sample receiving temperature monitoring is not adequate.
Discussion:
The sample receiving area refrigerators are monitored for temperature, but the temperature measuring devices are not certified. The devices found in use were a Kenmore model 8790384 SN 583220844 and a Cole Parmer model 900-80-2 SN 72428943. The large stainless steel refrigerator uses a dial gauge thermometer that did not have a model or serial# marked on it. The cooler temperatures are not monitored by a temperature reading, only by a small indicator that shows whether the cooler temperature condition was "good", "moderate" or "fail", but did not specify what temperatures these conditions represent. The temperature monitors must be calibrated. Although the use of min/max temp strips is allowable, it would be better to monitor the temperature of coolers directly.
References:
Quality Assurance Handbook for Air Pollution Measurement Systems Section 8.2.1 page 88, QA Guide 2.12 Section 7.10
Recommendation to Address Finding:
Institute a temperature measurement system for storage areas and sample receiving.

Finding #	PM2.5 Finding 7
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

	Major Finding
X	Minor Finding
	Recommendation

Finding:
Mean and standard deviations of temperature and humidity readings are not being calculated to document laboratory stability.
Discussion:
Temperature control of the weighing laboratory should be documented to show ≤ 2° C SD over a 24 hour period. Humidity control should be documented to be ≤ 5% SD over a 24 hour period.
References:
Quality Assurance Handbook for Air Pollution Measurement Systems 2.12 Sections 4.3.7 and 7.6, Table 7-1
Recommendation to Address Finding:
Document and control chart all temperature and humidity readings.

Finding #	PM2.5 Finding 8
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

	Major Finding
	Minor Finding
X	Recommendation

Finding:
Analysts did not know the limits for field blanks or duplicates. Method blank limits are not posted in the logbook or in the weighing laboratories.
Discussion:
Analysts should be well aware of all limits for blanks. An analyst was asked to demonstrate a blank weighing. The individual blank checked during the audit was within ±15 µg, but the analyst was not aware of the limit when asked. The limit is also not written in the logbook. The method blank shown on the day of audit showed a 5 µg deflection from the previous day's mass, which is acceptable.
References:
Quality Assurance Handbook for Air Pollution Measurement Systems Vol II, Section 10, page 98, Quality Assurance Handbook for Air Pollution Measurement Systems 2.12 Section 7.7
Recommendation to Address Finding:
Field blanks required limits of ±30 µg should be specified in the SOP, the logbook and posted in the weighing laboratory.

Finding #	PM2.5 Finding 9
Agency:	CCDEC
Date of Audit:	11/19-21/2013
Program Area:	PM2.5 Laboratory

	Major Finding
	Minor Finding
X	Recommendation

Finding:
Analysts do not have adequate laboratory stands for securely moving filters from the equilibration area to the weighing area.
Discussion:
Analysts were placing trays of filters on garbage cans while weighing. The garbage cans were unstable and could easily tip over invalidating many samples.
References:
Recommendation to Address Finding:
Utilize sturdy laboratory stands with wheels that can be easily and steadily moved from the equilibration area to the weighing area.

APPENDIX II – Completed Technical Systems Audit Checklist and Completed PM2.5 Weighing Lab Checklist

United States Environmental Protection Agency
Region 5

National Ambient Air Monitoring Technical Systems Audit Checklist

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1) General / Quality Management

State/ Local / Tribal Agency Audited:	Cook County Department of Environmental Control
Address:	69 West Washington Street Suite 1900
City, State, and Zip Code:	Chicago, IL 60602
Date of Technical System Audit:	11/19/2013-11/21/2013
Auditor / Agency:	USEPA

a) Program Organization

Key Individuals

Agency Director:	Deborah Stone
Ambient Air Monitoring (AAM) Network Manager:	Les Young
Quality Assurance Officers:	Lynn Schmitt and Karen Moore-Wright (Field QA only)
QA Auditors:	Lynn Schmitt and Karen Moore-Wright (Field QA only)
Field Operations Supervisor / Lead:	Les Young
Laboratory Supervisor:	Les Young
QA Laboratory Analyst:	Karen Moore-Wright/Melody Carr
Data Management Supervisor / Lead:	Les Young

Attach an Organizational Chart:

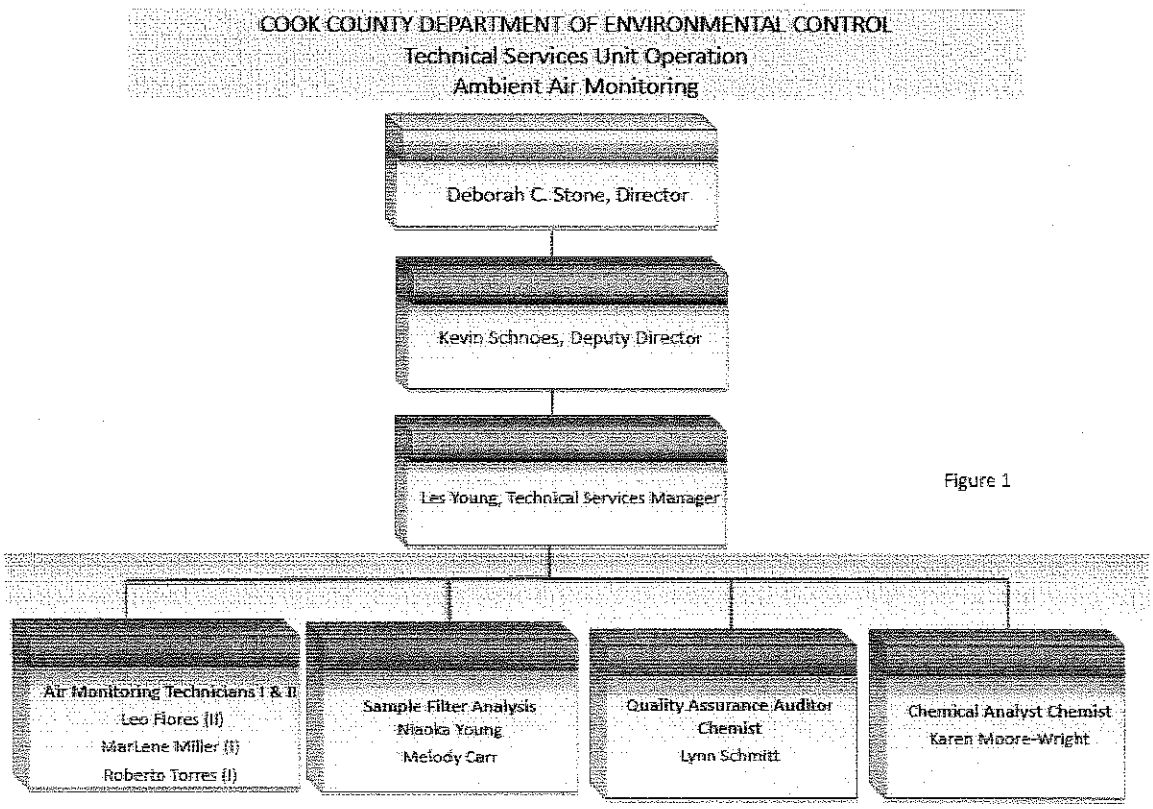


Figure 1

Flow Chart:

Key position staffing. Number of personnel available to each of the following program areas:							
Program Area	Number of People Primary	Number of People Backup	Vacancies	Program Area	Number of People Primary	Number of People Backup	Vacancies
Network Design and Siting				Data and Data Management			
QC activities	5			Equipment repair and maintenance			
QA activities	1			Financial Management	3		

List available personnel by name and percentage of time spent on each task category.

Name	Network Design and Siting	QC Activities	QA Activities	Equipment repair and maintenance	Data and Data Management	Financial Management
Deborah Stone	**5**	**5**	**5**			**15**
Kevin Schnoes	**5**	**5**	**5**			**5**
Leslie Young	**40**	**30**	**20**		**30**	
Ellen O'Connor						**80**
Leo Flores				**55**		
Roberto Torres				**25**		
Marlene Miller				**20**		
Melody Carr			**10**		**15**	
Niaoka Young			**10**		**15**	
Lynn Schmitt	**25**	**30**	**25**		**20**	
Karen Moore-Wright	**25**	**30**	**25**		**20**	

Comment on the need for additional personnel if applicable.

List personnel who have authority or are responsible for:

Activity	Name	Title
QA Training Field/Lab		
Grant Management	**Deborah Stone/Kevin Schnoes/Les Young/Ellen O'Connor**	**Director/Deputy Director/Technical Services Manager/Bus. Manager**
Purchases greater than $500	**Kevin Schnoes/Leslie Young**	**Deputy Director/Technical Services Manager**
Equipment and Service Contract Management	**Kevin Schnoes/Leslie Young**	**Deputy Director/Technical Services Manager**
Staff appointment	**Deborah Stone**	**Director**

b) Facilities

Identify the principal facilities where the agency conducts work that is related to air monitoring. Do not include monitoring stations but do include facilities where work is performed by contractors or other organizations.

Facility AAM Function	Offices responsible for ensuring adequacy	Location	Adequate Y/N To be completed by auditor
Instrument repair,	**Maywood Laboratory**	**Maywood, IL**	**Y**
Certification of Standards e.g. gases, flow transfers, MFC,	**Maywood Laboratory**	**Maywood, IL**	**Y**
PM filter weighing,	**Maywood Laboratory**	**Maywood, IL**	**Y**
Data verification and processing,	**Maywood Laboratory**	**Maywood, IL**	**Y**
General office space,	**Maywood Laboratory**	**Maywood, IL**	**Y**
Storage space, short and long term,	**Maywood Laboratory**	**Maywood, IL**	**Y**
Air Toxics (Carbonyls, VOCs, Metals):	**Lab in ME Bldg**	**Chicago, IL**	**Y**

Indicate any facilities that should be upgraded. Identify by function:

Are facilities adequate concerning safety?	Yes☒	No☐

Please explain if answer is no:

Suggested improvements or recommendations for the items above:

Are there any significant changes which are likely to be implemented to agency facilities within the next one to two years? Comment on agency's needs for additional physical space (laboratory, office, storage, etc.).

Facility	Function	Proposed Change - Date
Maywood Lab	Renovation cancelled and will potentially be moving to different Cook County Facility/Campus.	FY 2014
University of Chicago	Moving ozone monitoring site to different location.CCDEC has proposed Provident hospital Campus as a replacement for the U of C Ozone Monitoring. At present, site has been changed to a seasonal site and is not yet relocated.	FY 2014

c) Independent Quality Assurance and Quality Control

Status of Quality Assurance Program			
Question	**Yes**	**No**	**Comment**
Does the agency perform QA activities with internal personnel? If no go to Section d.	☒	☐	
Does the agency maintain a separate laboratory to support quality assurance activities?	☐	☒	
Has the agency documented and implemented specific audit procedures separate from monitoring procedures?	☒	☐	
Are there two levels of management separation between QA and QC operations? Please describe below:	☐	☒	
Does the agency have identifiable auditing equipment and standards (specifically intended for sole use) for audits?	☒	☐	In process of certifying new equipment.

Internal Performance Audits

Question	**Yes**	**No**	**Comment**
Does the agency have separate facilities to support audits and calibrations?	☒	☐	Separate instruments and separate area for audit equipment.
If the agency has in place contracts or similar agreements either with another agency or contractor to perform audits or calibrations, please name the organization and briefly describe the type of agreement. **Some audits are performed by USEPA contracted contractors and ILEPA.**			
If the agency does not have a performance audit SOP (included as an attachment), please describe performance audit procedure for each type of pollutant.			
Does the agency maintain independence of audit standards and personnel?	☒	☐	
Please provide information on certification of audit standards currently being used. Include information on vendor and internal or external certification of standards. **USEPA Protocol Gases are provided by Airgas, Microbalances are calibrated and certified semiannually by Sartorius, Analytical balances are certified by VJ Technologies, Lead Standards (Strips) are provided by USEPA, Other Atomic Absorption Standards are provided by Perkin Elmer; Flow Devices are certified by BGI and Bios International, Ozone Primary Standard is certified by USEPA; TSP flow devices are certified by IEPA, and barometers are certified by NovaLynx. All Standards are NIST traceable.**			
Does the agency have a certified source of zero air for performance audits?	☐	☒	

Does the agency have procedures for auditing and/or validating performance of Meteorological monitoring?	☒	☐	Described later in this document.
Please provide a list of the agency's audit equipment and age of audit equipment. Partial List: **BGI Deltacal 8 years** **Tisch Enironmental Variable Resistance Orifice 8 years** **Hi Q Environmental Instruments 8 years** **Teledyne API Ozone Transfer Standard 7 years**			
Is audit equipment ever used to support routine calibration and QC checks required for monitoring network operations? If yes, please describe. **No, the auditing equipment is only used for auditing.**			
Are standard operating procedures (SOPs) for air monitoring available to all field personnel?	☒	☐	
Has the agency established and has it documented criteria to define agency-acceptable audit results?	☒	☐	

Please complete the table below with the pollutant, monitor and acceptance criteria.

Pollutant	How is performance tracked (e.g., control charts)	Audit Result Acceptance Criteria
CO	**DISCONTINUED**	**DISCONTINUED**
O3	**Weekly Precisions checks and Annual Audit submitted to IEPA for Reviewing and filing**	**Per USEPA QA Handbook Volume II Guidelines**
NO2	**Weekly Precisions checks and Annual Audit submitted to IEPA for Reviewing and filing**	**Per USEPA QA Handbook Volume II Guidelines**
SO2	**Weekly Precisions checks and Annual Audit submitted to IEPA for Reviewing and filing**	**Per USEPA QA Handbook Volume II Guidelines**
PM10	**DISCONTINUED**	**DISCONTINUED**
PM2.5	**Monthly flow verifications and Semi Annual Audits are submitted to IEPA for Reviewing and filing**	**Per USEPA QA Handbook Volume II Guidelines**
Pb	**Monthly flow verifications and Semi Annual Audits are submitted to IEPA for Reviewing and filing**	**Per USEPA QA Handbook Volume II Guidelines**
VOCs	**N/A**	**N/A**
Carbonyls	**N/A**	**N/A**
PM2.5 speciation	**Tracked via samples sent to RTI**	**Per USEPA QA Handbook Volume II Guidelines**
PM10-2.5 speciation	**N/A**	**N/A**
PM10-2.5 FRM Mass	**N/A**	**N/A**
Continuous PM2.5	**Monthly flow verifications and Semi Annual Audits are submitted to IEPA for Review and**	**Per USEPA Handbook Volume II Guidelines**

	filing	
Trace Levels (CO)	N/A	N/A
Trace Levels (SO2)	N/A	N/A
Trace Levels (NO)	N/A	N/A
Trace Levels (NOy)	N/A	N/A
Surface Meteorology	N/A	N/A
Others	N/A	N/A

Question	Yes	No	Comment
Were these audit criteria based on, or derived from, the guidance found in Volume II of the QA Handbook for Air Pollution Measurement System, Section 10.3?	☒	☐	If no, please explain. If yes, please explain any changes or assumptions made in the derivation.

What corrective action may be taken if criteria are exceeded? If possible, indicate two examples of corrective actions, taken within the period since the previous systems audit which are based directly on the criteria discussed above. Instrument calibration or if necessary instrument repair or replacement. Calibrations are performed before precision checks reach upper limit.

Corrective Action # 1
Instrument Maintenance (i.e. cleaning, filter replacement, verify proper connections) or repair if necessary.

SO2 at ComEd – Instrument was repaired with the replacement of a lamp and recalibrated in July of 2013.

Corrective Action #2
Replace instrument with spare instrument and troubleshoot defective instrument in lab.

Ozone at Taft- instrument replaced and problem instrument returned to manufacturer for repair in July of 2013.

d) Planning Documents (including QMP, QAPP, & SOPs)

QMP questions	**Yes**	**No**	**Comment**
Does the agency have an EPA-approved quality management plan?	☐	☒	QMP Submitted to USEPA for approval.
If yes, have changes to the plan been approved by the EPA?	☐	☒	
Has the QMP been approved by EPA within the last five years?	☐	☒	
Please provide: Date of Original Approval: Date of Last Revision: **09/2013** Date of Latest Approval:			
QAPP questions	Yes	No	Comment
Does the agency have an EPA-approved quality assurance project plan?	☐	☒	QAPP and SOP's Submitted to USEPA for approval.
If yes, have changes to the plan been approved by the EPA?	☐	☒	
Has the QAPP been reviewed by EPA annually?	☐	☒	
Please provide: Date of Original Approval: Date of Last Revision: **09/2013** Date of Latest Approval:			
Does the agency have any revisions to your QA project plan still pending?	☐	☒	
How does the agency verify the QA project plan is fully implemented? **Site visits and regular review of Technicians activities.**			
How are the updates distributed? **Memo and email to all Team members**			
What personnel regularly receive updates? **Director Deborah Stone, Deputy Director Kevin Schnoes, Technical Services Manager Les Young and All Technical Services Unit Team Members.**			
SOP questions			
Has the agency prepared and implemented standard operating procedures (SOPs) for all facets of agency operation?	☒	☐	
Do the SOPs adequately address ANSI/ASQC E-4 quality system required by 40 CFR 58, Appendix A?	☒	☐	
Are copies of the SOP or pertinent sections available to agency personnel?	☒	☐	Yes. Copies of all SOPs are saved on the Shared drive at Maywood. A hard copy of each SOP is available in the QA officer's office in Maywood. A copy of each SOP is available

			at each site. Technicians also carry a binder with copies of the SOPs with them.
How does the agency verify that the SOPs are implemented as provided?	**Site Visits and regular review of Technicians activities.**		
How are the updates distributed?	**Manger Les Young distributes to all Team Members, Director and Deputy Director.**		

e) General Documentation Policies

Question	Yes	No	Comment
Does the agency have a documented records management plan?	☒	☐	
Does the agency have a list of files considered official records and their media type i.e., paper, electronic?	☒	☐	
Does the agency have a schedule for retention and disposition of records?	☒	☐	
Are records for at least three years?	☒	☐	
Who is responsible for the storage and retrieval of records?	**Technical Services Manager**		
What security measures are utilized to protect records?	**Locked file cabinets, locked store rooms, lab is in the basement area of the district courthouse building with County Sheriffs to secure building.**		
Where/when does the agency rely on electronic files as primary records?	**Particulate sample and continuous monitoring data.**		
What is the system for the storage, retrieval and backup of these files?	**Iomega backup system, computer storage programs and data storage flash drives. Continuous monitoring data files are stored on Cook County network storage system.**		

f) Training

Question	Yes	No	Comment
Does the agency have a training program and training plan?	☒	☐	
Where is it documented? **Technical Services Manager maintains files of training for staff members.**			
Does it make use of seminars, courses, EPA sponsored college level courses?	☒	☐	**Seminars, EPA Webinars, CD's DVD's and Vendor Training.**
Are personnel cross-trained for other ambient air monitoring duties?	☒	☐	**Some cross training is present in the agency.**
Are training funds specifically designated in the annual budget?	☒	☐	
Does the training plan include:			
Training requirements by position	☒	☐	
Frequency of training	☒	☐	
Training for contract personnel	☐	☒	
A list of core QA related courses	☒	☐	

Indicate below the three most recent training events and identify the personnel participating in them.

Event	Dates	Participant(s)
New Hire	**May 29, 2013**	**Lynn Schmitt**
New Hire	**July 31, 2013**	**Karen Moore-Wright**
DOT Hazardous Materials Training	**August 9, 2013**	**Karen Moore-Wright and Lynn Schmitt**
Fire and Building Safety Plan (ME Lab)	**August 2013**	**Karen Moore-Wright and Melody Carr**
Sunset Carbon Monitor Program Training	**Aug 2, 2013**	**Les Young, Karen Moore-Wright and Lynn Schmitt, Leo Flores**
Personal Protective Equipment Slips, Trips and Falls Training	**October 25, 2013**	**Les Young, Karen Moore-Wright and Lynn Schmitt**
Audit Training	**Multiple dates**	**Karen Moore-Wright, Lynn Schmitt, Les Young**
Chromeleon 6.8 Level 1 and 2 Operator –Ion Chromatography	**November 4-5, 2013**	**Lynn Schmitt and Karen Moore-Wright**

g) Oversight of Contractors and Suppliers

Questions about Contractors	**Yes**	**No**	**Comment**
Who is responsible for oversight of contract personnel?	**N/A**		
What steps are taken to ensure contract personnel meet training and experience criteria?	**N/A**		
How often are contracts reviewed and/or renewed?	**Annually for AA and IC instruments. Microbalances have a 3 year agreement with semi-annual maintenance and calibration visits.**		
Questions about Suppliers			
Have criteria and specification been established for consumable supplies and for equipment?	☒	☐	**Instrument manuals specifications.**
What supplies and equipment have established specifications?	**All monitoring and sampling instruments and related parts as well as audit devices, transfer standards, instrument for flow verifications and balances/microbalances.**		
Is equipment from suppliers open for bid?	☒	☐	**In most instances, i.e. When cost exceeds $5,000.00**

h) Corrective Action

Question	Yes	No	Comment
Does the agency have a comprehensive corrective action program in place and operational?	☒	☐	
Have the procedures been documented?	☒	☐	
As a part of the QA project plan?	☒	☐	
As a separate standard operating procedure?	☒	☐	
Does the agency have established and documented corrective limits for QA and QC activities?	☒	☐	
Are procedures implemented for corrective actions based on results of the following which fall outside the established limits:			
Performance evaluations?	☒	☐	
Precision goals?	☒	☐	
Bias goals?	☐	☐	
NPAP audits?	☒	☐	
PEP audits?	☒	☐	
Validations of one point QC check goals?	☒	☐	
Completeness goals?	☒	☐	
Data audits?	☒	☐	
Calibrations and zero span checks?	☒	☐	
Technical Systems Audit findings?	☒	☐	
Have the procedures been documented?	☒	☐	

How is responsibility for implementing corrective actions assigned? Briefly discuss.

Monitoring and sampling actions are assigned to the Air Monitoring Technicians. Filter processing and weighing actions are assigned to the Sample Filter Analyst. Laboratory actions are assigned to Chemical Analyst and differentiated by ion chromatography or atomic absorption analyses or arsenic.

How does the agency follow up on implemented corrective actions?
Technical Services Manager reviews actions with team members involved in procedures to check improvement status.

Briefly describe recent examples of the ways in which the above corrective action system was employed to remove problems.
Sulfur Dioxide monitor values at ComEd did not match other monitoring in the area and the instrument persistently displayed a fault light which was determined to be the UV lamp. Leo Flores and Les Young after some troubleshooting with API and then replaced the lamp. Les Young followed up with the site operator MarLene Miller for data status.

i) Quality Improvement

Question	Yes	No	Comment
What actions were taken to improve the quality system since the last TSA? **CCDEC team engaged in training at the USEPA Region 5 Office with the Q A Staff for a study of the CFR and the Q A Handbook. Region 5 Q A Team have also conducted training at CCDEC sites for the operators. IEPA Air Team have also provided some training in various aspects of the air monitoring processes, particularly auditing. Some new instruments have been purchased for the P M 2.5 weighing.**			
Since the last TSA do your control charts indicate that the overall data quality for each pollutant steady or improving?	☒	☐	Data quality decreased and then increased. This was due to staff turnover. New staff members were hired and trained. There has also been increased QC Activity.
For areas where data quality appears to be declining has a cause been determined?	☒	☐	Staff Turnover
Have all deficiencies indicted on the previous TSA been corrected?	☐	☒	
If not explain. **Sample probe for Ozone at Taft may still be at issue. At IEPA recommendation, Jerry Mazurek from IEPA was assigned by Ernie Kierbach to review all CCDEC Ozone Sites. Mr. Mazurek did not indicate an issue with the location of the probe. However at last TSA, Auditor indicated a height deficiency in the location of the probe.**			

Are there pending plans for quality improvement such as purchase of new or improved equipment, standards, or instruments?	☒	☐	CCDEC Plans to purchase new Ozone monitors and Data Loggers in 2014

j) External Performance Audits

Question	Yes	No	Comment
Does your agency participate in NPAP, PM2.5 PEP, and other performance audits performed by an external party and/or using external standards?	☒	☐	**According to USEPA schedules**
If the agency does not participate, please explain why not.			
Are NPAP audits performed by QA staff, site operators, calibration staff, and/or another group?	☒	☐	USEPA Contractor performs NPAP audit with CCDEC site operator and others staff at site.

National Performance Audit Program (NPAP) and Additional Audits

Does the agency participate in the National Performance Audit Program (NPAP) as required under 40 CFR 58, Appendix A? If so, identify the individual with primary responsibility for the required participation in the National Performance Audit Program.
Name: Program Function:

Please complete the table below:	
Parameter Audited	**Date of Last NPAP Audit**
CO	**2011**
O_3	**TTP 2013**
SO_2	**TTP2013**
NO_2	**2011**
PM_{10}	**N/A**
$PM_{2.5}$	**PEP 2013**
Pb	**PEP 2013**
VOCs	**N/A**
Carbonyls	**N/A**
Trace CO	**N/A**
Trace SO_2	**N/A**
Trace NO	**N/A**
Trace NO_Y	**N/A**

2) Network Management/Field Operations

State/Local/Tribal Agency Audited:	**Cook County Department of Environmental Control**
Address:	**69 West Washington Street Suite 1900**
City, State, and Zip Code:	**Chicago, IL 60602**
Auditor / Agency:	**United States Environmental Protection Agency**

Key Individuals

Ambient Air Monitoring Network Manager:	**Les Young**
Quality Assurance Officers:	**Karen Moore-Wright (field QA only) and Lynn Schmitt**
Field Operations Supervisor/Lead:	**Les Young**
Field Operations Staff involved in the TSA:	**Leo Flores, Marlene Miller, Roberto Torres, Lynn Schmitt and Karen Moore-Wright**

a) Network Design

Complete the table below for each of the pollutants monitored as part of your air monitoring network. (Record applicable count by category.) Also indicate seasonal monitoring with an S for a Parameter/Category as appropriate. Provide the most recent annual monitoring network plan, including date of approval and AQS quick look or if not available, network description and other similar summary of site data, including SLAMS, Other and Toxics.

Category*	SO2	NO2	CO	O3	PM10	PM2.5	Pb	Other (type)	Other (type)
NCore									
SLAMS	**3**	**2**	**N/A**	**7**	**N/A**	**7**	**4**	**4 (CSN)**	**1 (Sunset)**
SPM									
PAMS									
Total									

*NCore - National Core monitoring stations; SLAMS - state and local air monitoring stations; SPM - special purpose monitors; PAMS - photochemical assessment monitoring stations

Question	**Yes**	**No**	**Comment**
What is the date of the most current Monitoring Network Plan?	**07/2013**		
Is it available for public inspection?	☒	☐	
Does it include the information required for each site?			
AQS Site ID #?	☒	☐	
Street address and geographic coordinates?	☒	☐	
Sampling and Analysis Method(s)?	☒	☐	
Operating Schedule?	☒	☐	
Monitoring Objective and Scale of Representativeness?	☒	☐	
Site suitable/not suitable for comparison to annual PM2.5 NAAQS?	X	☐	
MSA, CBSA or CSA indicated as required?	☐	☐	

Indicate by AQS Site ID # any non-conformance with the requirements of 40 CFR 58, Appendices D and E along with any waivers granted by the Regional Office (provide waiver documentation).

Monitor	**Site ID**	**Reason for Non-Conformance**
SO_2	**N/A**	**N/A**
O_3	**17031103**	**Probe height**
CO	**N/A**	**N/A**
NO_2	**N/A**	**N/A**

PM_{10}	**N/A**	**N/A**
$PM_{2.5}$	**N/A**	**N/A**
Pb	**170316004**	**Sampler height (Corrected 10/2011)**

Question	Yes	No	Comment
Are hard copy site information files retained by the agency for all air monitoring stations within the network?	☒	☐	
Does each station have the required information including:			
AQS Site ID Number?	☒	☐	
Photographs/slides to the four cardinal compass points?	☒	☐	
Startup and shutdown dates?	☒	☐	
Documentation of instrumentation?	☒	☐	
Who has custody of the current network documents			Name: **Les Young** Title: **Tech Svc Mngr**
Does the current level of monitoring effort, station placement, instrumentation, etc., meet requirements imposed by current grant conditions?	☒	☐	
How often is the network siting reviewed?			Frequency: **Annually** Date of last review: July 2013
Are there any issues?	☐	☒	
Do any sites vary from the required frequency in 40 CFR 58.12?	☐	☒	
Does the number of collocated monitoring stations meet the requirements of 40 CFR 58 Appendix A?	☒	☐	

b) Changes to the Network since the last audit

What is the date of the most recent network assessment? (Provide copy) Are all SLAMS parameters included? Any others?

Please provide information on any site changes since the last audit.

Pollutant	Site ID	Site Address	Site Added/Deleted/ Relocated	Reason (Assessment, lost lease, etc. Provide documentation of reason for each site change.)
TSP/Pb/PM2.5	170310052	4850 W. Wilson	Pollutant deleted Sample Frequency	Assessment by IEPA
TSP/Pb/P.M. 2.5	170316006	1500 Maybrook	Relocated	IEPA Assessment
CO	170316004	First Avenue	Deleted	IEPA Assessment

CO	170314002	1850 S 50th Ave	Pollutant deleted	IEPA Assessment
SMP	170310076	7801 S. Lawndale	Special Carbon Project added	USEPA request

c) Proposed changes to the Network

Are future network changes proposed? **NO**

Please provide information on proposed site changes, including documentation of the need for the change and any required approvals

Pollutant	Site ID	Site Address	Site to be Added/Deleted/ Relocated	Reason (Assessment, lost lease, etc. Provide documentation of reason for each site change.)
N/A				
N/A				
N/A				

d) Field Support

Question	Yes	No	Comment
On average, how often are most of your stations visited by a field operator?			2X per Week
Is this visit frequency consistent for all reporting organizations within your agency?	☒	☐	
On average, how many stations does a single operator have responsibility for?	4		
How many of the stations of your SLAMS/NCORE network are equipped with sampling manifolds?	3		
Do the sample inlets and manifolds meet the requirements for through the probe audits?	YES		
I. Briefly describe most common manifold type.	Glass, 3 inches, ID		
II. Are Manifolds cleaned periodically?	☒	☐	How often? Quarterly
III. If the manifold is cleaned, what is used to perform cleaning?	Deionized water with brush.		
IV. Are manifold(s) equipped with a blower?	☒	☐	
V. Is there sufficient air flow through the manifold at all times?	☒	☐	Approximate air flow: CFM
VI. How is the air flow through the manifold monitored?	N/A		
VII. Is there a conditioning period for the manifold after cleaning?	☒	☐	Length of time: 96 HOURS
VIII. What is the residence time?			
Sampling lines: What material is used for instrument sampling lines?	Teflon		
Are lines changed or cleaned once per year?	☒	☐	

Do you utilize uninterruptable power supplies or backup power sources at your sites?	☒	☐	BAMS equipped with a UPS
What instruments or devices are protected?	☒	☐	All are surge protected.

i) SOPs

Question	Yes	No	Comment
Is the documentation of monitoring SOPs complete?	☒	☐	
Are any new monitoring SOPs needed?	☐	☒	
Are such procedures available to all field operations personnel?	☒	☐	
Are SOPs that detail operations during episode monitoring prepared and available to field personnel?	☒	☐	
Are SOPs based on the framework contained in Guidance for Preparing Standard Operating Procedures EPA QA/G-6?	☒	☐	

Please complete the following table:

Pollutant Monitored	Date of Last SOP Review	Date of Last SOP Revision
SO_2	**09/2013**	**09/2013**
NO_2	**09/2013**	**09/2013**
CO	**N/A**	**N/A**
O_3	**09/2013**	**09/2013**
PM_{10}	**N/A**	**N/A**
$PM_{2.5}$ FRM mass	**09/2013**	**09/2013**
Pb	**09/2013**	**09/2013**
$PM_{2.5}$ speciation	**N/A**	**N/A**
$PM_{10\text{-}2.5}$ FRM mass	**N/A**	**N/A**
$PM_{10\text{-}2.5}$ speciation	**N/A**	**N/A**
Continuous $PM_{2.5}$ mass	**N/A**	**N/A**
Trace levels (CO)	**N/A**	**N/A**
Trace levels (SO_2)	**N/A**	**N/A**
Trace levels (NO)	**N/A**	**N/A**
Trace levels (NO_y) Total reactive nitrogen	**N/A**	**N/A**
Surface Meteorology Wind speed and direction, temperature, RH, precipitation and solar radiation	**09/2013**	**09/2013**
Other parameters	**N/A**	**N/A**

ii) Instrument Acceptance

Has your agency obtained necessary waiver provisions to operate equipment which does not meet the effective reference and equivalency requirements? List all waivers.

Please list instruments in your inventory

Pollutant	Number	Make and Models	Reference or Equivalent number
SO_2	4	Dasibi 4108	EQSA-1086-061
NO_2	2	Thermo 42 I	RFNA-1289-074
CO	2	Teledyne API 300	
O_3	7 8	Dasibi 1008 RS API 400	EQOA-0383-56 EQOA-0992-087
PM_{10}	N/A	N/A	N/A
$PM_{2.5}$	8	Anderson Thermo Partisol 2025	RFPS-0598-012 RFPS-0498-118
Pb	6	GMW	
Multi gas calibrator		Thermo 146	
$PM_{2.5}$ speciation		MetOne URG	
$PM_{10-2.5}$ speciation	N/A	N/A	N/A
$PM_{10-2.5}$ FRM mass	N/A	N/A	N/A
Continuous $PM_{2.5}$ mass	4	Met One BAM 1020	EQPM-0798-122
Trace levels (CO)	N/A	N/A	N/A
Trace levels (SO_2)	N/A	N/A	N/A
Trace levels (NO)	N/A	N/A	N/A
Trace levels (NO_y)	N/A	N/A	N/A
Surface Meteorology			
Others	1	Sunset Semi-Continuous Carbon Analyzer	

Please comment briefly and prioritize your currently identified instrument needs.

Question	Yes	No	Comment
Are criteria established for field QC equipment?	☒	☐	
Are criteria established for field QC gas standards?	☒	☐	USEPA Protocol Gas with NIST traceability

iii) Calibration

Please indicate the frequency of multi point calibrations.		
Pollutant	**Frequency**	**Name of Calibration Method**
Ozone	Every 6 Months	Transfer Standard
NO_X	Every 6 Months	Mass Flow Controller with EPA Protocol tank
SO_2	Every 6 Months	Mass Flow Controller with EPA Protocol tank

Question	**Yes**	**No**	**Comment**
Are field calibration procedures included in the document? SOPs?	☒	☐	Location (site, lab etc.):
Are calibrations performed in keeping with the guidance in Vol. II of the QA Handbook for Air Pollution Measurement Systems?	☒	☐	If no, why not?
Are calibration procedures consistent with the operational requirements of Appendices to 40 CFR 50 or to analyzer operation/instruction manuals?	☒	☐	If no, why not?
Have changes been made to calibration methods based on manufacturer's suggestions for a particular instrument?	☐	☒	
Do standard materials used for calibrations meet the requirements of appendices to 40 CFR 50 (EPA reference methods) and Appendix A to 40 CFR 58 (traceability of materials to NIST-SRMs or CRMs)?	☒	☐	Comment on deviations
Are all flow-measurement devices checked and certified?	☒	☐	
Additional comments:			

Please list the authoritative standards used for each type of flow measurement, indicate the certification frequency of standards to maintain field material/device credibility.

Flow Device	**Primary Standard**	**Frequency of Certification**
Hi-Volume orifice	IEPA	Semi-annually
Streamline	**N/A**	**N/A**
TriCal	URG	Annually
BIOS	Bios International	Annually
Delta Cal	BGI	Annually

Gilibrators		
Where do field operations personnel obtain gaseous standards?	**Airgas Inc**	
Standards are certified by: **Cook County participated in the USEPA Protocol Gas Verification Program using Airgas tanks**		
The agency laboratory?	☐	☒
EPA/NERL standards laboratory?	☐	☒
A laboratory separate from this agency's but part of the same reporting organization?	☐	☒
The vendor?	☒	☐
Other (describe).	☐	☒
How are the gas standards verified after receipt?		
How are flow measurement devices certified?	**Bios Flow Calibrator is used to certify other flow measurement instruments. BGI Flowmeter. Tisch Flow Orifice.**	
Please provide copies of certifications of all standards currently in use from your master and/or satellite standard certification logbooks (i.e., chemical standards, ozone standards, flow standards, and zero air standards).		
What equipment is used to perform calibrations (e.g., dilution devices) and how is the performance of this equipment verified?	**CSI 1700 Mass Flow Controller**	
Does the documentation include expiration date of certification?	☒	☐
Reference to primary standard used?	☒	☐
What traceability is used?	NIST	
Please attach an example of recent documentation of traceability		
Is calibration equipment maintained at each station?	☐	☒
How is the functional integrity of this equipment documented?	A copy of the flow certification is attached to the instrument always.	
Who has responsibility for maintaining field calibration standards? **Lynn Schmitt, Karen Moore-Wright and Site Operators**		

Please list the authoritative standards and frequency of each type of dilution, permeation and ozone calibrator and indicate the certification frequency.

Calibrator	Primary Standard	Frequency of Certification
Permeation calibrator flow controller	N/A	N/A

Permeation calibrator temperature	N/A	N/A
Dilution calibrator air and gas flow controllers	Bios Definer 220	Annually
Field/working standard photometer	USEPA certified	Annually
Ozone generator	Included in Photometer instrument	

Please identify station standards for gaseous pollutants at representative air monitoring stations (attach additional sheets as appropriate):

Parameter	Station(s)	Identification of Standard(s)	Recertification Date(s)
CO	N/A	N/A	N/A
NO_2		CSI 1700 w/ EPA Protocol gas tank	
SO_2		CSI 1700 w/ EPA Protocol gas tank	
O_3	Transfer Standard	API 703	

iv) Repair

Who is responsible for performing preventive maintenance? **All Technicians as well as the vendors where CCDEC have a maintenance agreement (Dionex and Perkin Elmer).**
Is special training provided them for performing preventive maintenance? Briefly comment on background or courses.
Leo Flores occasionally ia able to take classes at colleges and universities in electronics. Some training is offered at USEPA website.
Is this training routinely reinforced? Yes☒ No☐

If no, why not?

What is your preventive maintenance schedule for each type of field instrumentation? **Manufacturer recommendation as well as QA handbook requirements.**
If preventive maintenance is MINOR, it is performed at (check one or more): field station☒, headquarters facilities☒, equipment is sent to manufacturer☐.

If preventive maintenance is MAJOR, it is performed at (check one or more): field station☐, headquarters facilities☐, equipment is sent to manufacturer☒.All major instrument work preventive or repairs are performed by the manuafacturer at their designated location, i.e. factory.

Does the agency have service contracts or agreements in place with instrument manufacturers? Indicate below or attach additional pages to show which instrumentation is covered? **Perkin-Elmer Atomic Absorption Instrument, Dionex, Ion Chromatograph Instrument, Liebert Challenger Temperature and Humidity Equipment.**

Comment briefly on the adequacy and availability of the supply of spare parts, tools and manuals available to the field operator to perform any necessary maintenance activities. Do you feel that this is adequate to prevent any significant data loss?
Manuals are available to field personnel for all instruments. Spare part inventory is checked regularly and ordered as needed.

Is the agency currently experiencing any recurring problem with equipment or manufacturer(s)? If so, please identify the equipment or manufacturer, and comment on steps taken to remedy the problem. **NO**

Have you lost any data due to repairs in the last 2 years?

More than 24 hours?	**YES**
More than 48 hours?	**YES**
More than a week?	**YES**

Explain any situations where instrument down time was due to lack of preventive maintenance of unavailability of parts.
In 2012 CCDEC experienced a telephone/modem/data logger connection situation where no data could be retrieved from the data logger. After repeated efforts with AT & T and multiple modem replacements, about 1 month of CO data was not recovered. The resolution was physically downloading the data from the data logger to a laptop and transferring it to the Telemetry software program. USEPA's Bilal Qazzaz was instrumental in reaching this resolution and retrieving data.

v) RECORD KEEPING

Question	Yes	No	Comment
What type of station logbooks are maintained at each monitoring station? (Maintenance logs, calibration logs, personal logs, etc.)	**Maintenance and calibration logs**		
What information is included in the station logbooks?	**Maintenance, Calibration dates, unusual occurrences with monitors.**		
Who reviews and verifies the logbooks for adequacy of station performance?	**Lynn Schmitt and Karen Moore-Wright**		
How is control of logbook maintained?	**Maintained at station until complete and the archived at Maywood lab**		
Where is the completed logbook archived?	**Maywood Lab**		
What other records are used?	**Leo Flores (Electronics Monitoring Technician Maintains excel spreadsheet of monitor activities such as repairs).**		
Zero span record?	☒	☐	
Gas usage log?	☒	☐	
Maintenance log?	☒	☐	
Log of precision checks?	☒	☐	
Control charts?	☐	☒	
A record of audits?	☒	☐	
Please describe the use and storage of these documents.			
Are calibration records or at least calibration constants available to field operators?	☒	☐	
Please attach an example field calibration record sheet to this questionnaire.			

vi) Site Information and monitor Information

PQAO: 258

AQS Site Name: Taft

AQS Site Number: 170311003

Agency Site Name/No.:
(if different than AQS Site
Name/Number)

Site Address: 6545 West Hurlbut

City & County: Chicago, Cook

Site Coordinates: +41.98433233/-87.7920017
(specify lat/long or UTM)

Site Elevation (m):

Criteria Pollutants Monitored: Ozone

Other Parameters:

Nearest Meteorological Site:
('on site' is met tower present at this site)

Photographs to and from each cardinal direction attached?
(Yes or No)

Name(s) of Report Preparer(s): **Les Young, Lynn Schmitt and Karen Moore-Wright**

Name(s) of Auditors:

Date:

Phone Number:

Site Map
Draw map of site and surrounding terrain and features, up to 100 meters.

Map notes

Monitor Information

	Pollutants		
Manufacturer	**Dasibi**		
Model	**1008 RS**		
Serial number	**6138**		
Scale of representation Micro, Middle, Neighborhood, Urban			
Objective (Population, Max concentration, Background, Transport)			
Height of probe above ground(m)	**18 M**		
Distance from obstruction (m)			
Type of obstruction (Wall, Tree, etc)			
Distance from roadway (m)			
Unrestricted airflow (Yes, No)	**YES**		
Designation (NCore, SLAMS, etc)			
Siting Criteria Met (Yes, No)	**NO –probe height exceeds per auditor**		

	Pollutants		
Manufacturer	**Teledyne API**		
Model	**300**		
Serial number			
Scale of representation Micro, Middle, Neighborhood, Urban			
Averaging time 1-, 8-, 24-hour			
Objective (Population, Max concentration, Background, Transport)			
Height of probe above ground(m)			
Distance from obstruction (m)	**8 M**		
Type of obstruction (Wall, Tree, etc)	**Tree**		
Distance from roadway (m)	**20 M**		
Unrestricted airflow (Yes, No)			

Designation (NCore, SLAMS, etc)			
Siting Criteria Met (Yes, No)	**NO tree too close per auditor**		

Insert additional copies of table as needed:

Area Information

Street Name	Traffic Count (Vehicles/day)

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	
East	
South	
West	

Direction	Obstructions	Height (m)	Distance (m)
North			
East			
South			
West			

Note: This table is for large obstructions that affect the entire site, such as large clusters of trees or entire buildings. Individual obstructions, such as walls, single trees, other monitors, etc, should be entered in the Monitor Information table.

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North		
East		
South		
West		

Comments:

3) Laboratory Operations

State/Local/Tribal Agency Audited:	**Cook County department of Environmental Control**
City, State, and Zip Code:	**Chicago. IL 60602**
Date of Technical System Audit:	
Auditor / Agency:	**United States Environmental Protection Agency**
Key Individuals	
Laboratory Manager:	**Les Young**
Laboratory Supervisor:	**Les Young**
Quality Assurance Officers:	**Lynn Schmitt**
Laboratory Staff involved in the TSA:	**Karen Moore-Wright, Lynn Schmit, Niaoka Young and Melody Carr**

a) Routine Operations

What analytical methods are employed in support of your air monitoring network?

	Analysis	Name or Description of Method
PM2.5	Filter weights	Filters are weighed pre and post exposed and weight is used in determining the PM2.5 concentration in ambient air.
Pb	Atomic absorption analysis	Perkin Elmer instrument is used to analyzed filter samples that have been digest using a solution of HCl & HNO3
Others (list by pollutant)		TSP sample strip is digest in HCl to extract arsenic using an arsine generator

1. Please describe areas where there have been difficulties meeting the regulatory requirements for any of the above analytical methods.

In the table below, please identify the current versions of written methods, supplements, and guidelines that are used in your agency.

Analysis	Documentation of Method
PM10	N/A
PM2.5	USEPA QA Handbook Volume II
Pb	USEPA QA Handbook Volume II
Others (list by pollutant)	

Question	Yes	No	Comment
Were procedures for the methods listed above included in the agency's QAAP or SOPs and were they reviewed by EPA? Also, are SOPs easily/readily accessible for use and reference?	☒	☐	
Does you lab have sufficient instrumentation to conduct analyses?	☒	☐	

Please describe needs for laboratory instrumentation

Question	Yes	No	Comment

b) Laboratory Quality Control

Please identify laboratory standards used in support of the air monitoring program, including standards which may be kept in an analytical laboratory and standards which may be kept in a field support area or quality assurance laboratory that is dedicated to the air monitoring program (attach additional sheets if appropriate):

Parameter	Location of Standards	Laboratory Standard	Recertification Date	Primary Standard*
CO				
NO2				
SO2				
O3	Maywood Lab	Maywood Lab	Dec 2012	USEPA
Weights	Maywood Lab	Maywood Lab	Nov 2013	Troemner LLC
Temperature				
Moisture				
Barometric Pressure	Maywood Lab	Maywood Lab	Jan 2013	Novalynx Inc
Flow	Maywood Lab	Maywood Lab	Jan 2013	Bios International
Other Flow Standard				
Lead	Lab at ME Building	Lab at ME Building	Feb 2013	IEPA/Perkin Elmer
Other	Lab at ME Building	Lab at ME Building	Feb 2013	Fisher Scientific

***Standards to which the laboratory standards can be traced.**

Question	Yes	No	Comment
Are all chemicals and solutions clearly marked with an indication of shelf life?	☒	☐	
Are chemicals removed and properly disposed of when shelf life expires?	☒	☐	
Are only ACS grade chemicals used by the laboratory?	☒	☐	
Comment on the traceability of chemicals used in the preparation of calibration standards.			

Question	Yes	No	Comment
Does the laboratory purchase standard solutions such as those for use with lead or other metals analysis?	☒	☐	
Are all calibration procedures documented?	☒	☐	
If answer "yes" to (f), please describe the following:			
Title of the document:			
Revision number:			
Where the document is: **CCDEC Lab**			
Are at least one duplicate, one blank, and one standard or spike included with a given analytical batch?	☒	☐	
Briefly describe the laboratory's use of data derived from blank analyses. **Used to compare results with that of exposed samples in determined pollutant concentrations.**			

Question	Yes	No	Comment
Are criteria established to determine whether a blank data are acceptable?	☒	☐	

How frequently and at what concentration ranges does the lab perform duplicate analysis? What constitutes an acceptable agreement? Please comment in the space below.
Duplicate analyses are performed when concentrations are outside of expected range as prescribed by National Air quality standard. QA handbook is checked for acceptable agreement.

Please describe how the lab use data obtained from spiked samples, including the acceptance criteria (e.g., acceptable percent recovery). CCDEC uses lead strips provided by the USEPA. Acceptance criteria is within 10% of these known concentrations. These results are used to certify other analysis data from the samples.

Question	Yes	No	Comment
Does the laboratory routinely include samples of reference material within an analytical batch?	☒	☐	
If yes, indicate frequency, level, and material used. A reference Lead Sample is included in each monthly Toxic Metals Analysis.			
Are mid-range standards included in analytical batches?	☐	X	
Please describe the frequency, level and compound used in the space provided below.			
Are criteria for real time quality control established that are based on the results obtained for the mid-range standards discussed above?	☐	X	
If yes, briefly discuss them below or indicate the document in which they can be found.			
Are appropriate acceptance criteria for each type of analysis documented?	X	☐	

c) Laboratory Preventive Maintenance

Question	Yes	No	Comment
For laboratory equipment, who has the responsibility for performing preventive maintenance? Instrument manufacturer performs annual preventive maintenance at in the lab.			
Is most maintenance performed in the lab?	☒	☐	
Is a maintenance log maintained for each major laboratory instrument?	☒	☐	
Are service contracts in place for major analytical instruments?	☒	☐	

d) Laboratory Record Keeping

Question	Yes	No	Comment
Are all samples that are received by the laboratory logged in?	☒	☐	
Discuss sample routing and special needs for analysis (or attach a copy of the latest SOP which covers this). Attach a flow chart if possible. **SOP REVIEW BY AUDITOR AND FOUND TO BE ACCEPTABLE.**			
Are log books kept for all analytical laboratory instruments?	☒	☐	
Are there log books or other records that indicate the checks made on materials and instruments such as weights, humidity indicators, balances, and thermometers?	☒	☐	
Identify type of record, acceptable/non-acceptable. **Lab logbooks are maintained for all samples which include a recording of weight checks (balance calibrations), temperature and humidity.**			
Are log books maintained to track the preparation of filters for the field?	☒	☐	
Are they current?	☒	☐	
Do they indicate proper use of conditioning?	☒	☐	
Weightings?	☒	☐	
Stamping and numbering?	☒	☐	
Are log books kept which track filters returning from the field for analysis?	☒	☐	
How are data records from the laboratory archived? Where? **CCDEC Lab in Maywood** Who has the responsibility? **Les Young, Melody Carr, Niaoka Young, Karen Moore-Wright and Lynn Schmitt.** Title: **Les Young - Technical Services Manager, Melody Carr and Niaoka Young – Sample Filer Analysis, Karen Moore-Wright – Chemical Analyst and Lynn Schmitt – Quality Assurance Auditor.** How long are records kept? Years **Indefinitely as storage permits minimum 10 years**			
Does the chain-of-custody procedure exist for laboratory samples?	☒	☐	
If yes, indicate date, title and revision number where it can be found. **Revised in September 2013 to reflect guidance for USEPA Quality Management Plan date 09/2013. CCDEC has copies in all SOP documents and in the CCDEC Quality Management Plan.**			

e) Laboratory Data Acquisition and Handling

Question	Yes	No	Comment
Identify those laboratory instruments which make use of computer interfaces directly to record data. Which ones use strip charts? Integrators?			
Are QC data readily available to the analyst during a given analytical run?	☒	☐	
What is the laboratory's capability with regard to data recovery? In case of problems, can they recapture data or are they dependent on computer operations? Discuss briefly. **Dependent on computer operations, buck up systems are used. Data from continuous sites is stored using data loggers. Some data is in log books, and in printed copies of reports.**			
Has a user's manual been prepared for the automated data acquisition instrumentation?	☐	☒	**Instructions are maintained in logbooks in the lab.**
Please provide below a data flow diagram which establishes, by a short summary flow chart: transcriptions, validations, and reporting format changes the data goes through before being released by the laboratory. **Data is entered into the appropriate program/spreadsheet in Maywood Lab computers; reports are generated and submitted to Technical Services Manager for review and verification of completeness; Data is then submitted to IEPA for review and additional verification of completeness.**			

f) Specific Pollutants: PM_{10}, $PM_{2.5}$ and Lead

Question	Yes	No	Comment
PM10 and PM2.5			
Does the agency use filters supplied by EPA?	☒	☐	
Do filters meet the specifications in 40 CFR 50?	☒	☐	
Are filters visually inspected via strong light from a view box for pinholes and other imperfections?	☐	☒	**Light Box instrument recommended in last TSA has been purchased to conduct this inspection**
Where does the laboratory keep records of the serial numbers of filters?	**In the sample logbooks**		
Are unexposed filters equilibrated in controlled conditioning environment which meets or exceeds the requirements of 40 CFR 50? **YES**			
Are the temperature and relative humidity of the conditioning environment monitored?	☒	☐	
Are the temperature and h umidity monitors calibrated?	☐	☒	**CCDEC lab has a maintenance contract for the equipment used to maintain humidity, temperature and equipment is inspected quarterly. Temp and Humidity monitor are compared with service vendor and recorded.**
Are balances checked with Class S or Class M weights each day when they are used?	☒	☐	
Is the balance check information placed in QC log book?	☒	☐	
To what sensitivity are filter weights recorded?	**0.001 milligram**		
Are filter serial numbers and tare weights recorded in a bound notebook?	☒	☐	
Are filters packaged for protection while transporting to and from the monitoring stations?	☒	☐	
How often are filter samples collected? (Indicate the average elapsed time in hours between end of sampling and laboratory receipt.)	**2 times per week – 24 to 48 hours**		
In what medium are field measurements recorded (e.g., in a log book, on a filter folder, or on standard forms)? **Log and standard form which CCDEC refers to as flysheets**			
Are exposed filters reconditioned for at least 24 hrs in the same conditioning environment as for unexposed filters? **YES**			
Briefly describe how exposed filters are prepared for conditioning. **Exposed filters are placed on trays in what CCDEC refers to as the clean room, where temp and humidity are controlled. Samples remain in this room for 24 hours and are also weighed in this same room.**			

Briefly describe how exposed filters are stored after being weighed. Each exposed filters is placed desiccator. **After the weighing, exposed filter are returned to labeled tins which are placed in small Ziploc bags for securing the sample. These samples are refrigerated for 2 years and then stored in labeled boxes in the store room.**			
Are blank filters reweighed? How often? **YES, reweighed once and with an audit of some of the reweighs.**			
Are chemical analyses performed on filters?	☐	☒	
LEAD			
Is analysis for lead being conducted using atomic absorption spectrometry with air acetylene flame?	☒	☐	If not, has the agency received an equivalency designation of their procedure?
Is either the hot acid or ultrasonic extraction procedure being followed precisely?	☒	☐	Which? Ultrasonic extraction procedure
Is Class A borosilicate glassware used throughout the analysis?	☒	☐	
Is all glassware cleaned with detergent, soaked and rinsed three times with distilled or de-ionized water?	☒	☐	De-ionized water
If extracted samples are stored, are linear polyethylene bottles used?	☒	☐	
Are all batches of glass fiber filters tested for background lead content?	☒	☐	
At a rate of 20 to 30 random filters per batch of 500 or greater?	☐	☐	Indicate rate. **See USEPA for rate. CCDEC includes a blank filter in run of lead samples analyzed.**
Are ACS reagent grade HNO3 and HCl used in the analysis?	☒	☐	
Is a calibration curve available having concentrations that cover the linear absorption range of the atomic absorption instrumentation?	☒	☐	
Is the stability of the calibration curve checked by alternately re-measuring every 10th sample a concentration of < = 1ug Pb/ml; < = 10 ug Pb/ml?	☒	☐	

4) DATA AND DATA MANAGEMENT

State/Local/Tribal Agency Audited:	**Cook County Department of Environmental Control**
City, State, and Zip Code:	**Chicago, IL 60602**
Date of Technical System Audit:	**11/18/2013**
Auditor / Agency:	**USEPA Region V**
Key Individuals	**Scott Hamilton, Anthony Ross, Bilal Qazzaz, Basim Dihu**
Data Manager:	**Les Young**
Data Supervisor:	**Les Young**
Quality Assurance Officers:	**Lynn Schmitt and Karen Moore-Wright**

a) Data Handling

Question	Yes	No	Comment
Is there a procedure, description, or a chart which shows a complete data sequence from point of acquisition to point of submission of data to EPA?	☐	☒	**Being Developed**

Please provide below a data flow diagram indicating both the data flow within the reporting organization.
Calibration and Precision data are reported to Lynn Schmitt and Karen Moore-Wright, who records data in computer file and stores hard copy. Sample Filter weights data are reported to Niaoka Young who records data in computer file and stores logbook copy. TSP and Lab analyses data are recorded in computer files by Melody Carr and Karen Moore-Wright. Reports are generated and stored by Les Young. All data is reviewed with Les Young prior to submitting to IEPA.

Are procedures for data handling (e.g., data reduction, review, etc.) documented?	☒	☐	

In what media (e.g., diskette, data cartridge, or telemetry) and formats do data arrive at the data processing location? Please list below.

Category of Data (by Pollutant)	Data Media and Formats
Lab analyses data	**Logbook format**
Gaseous pollutant data (SO2, Ozone, etc)	**Telemetry**
PM2.5 and TSP	**Lab Logbook and Diskette**

How often are data received at the processing location from the field sites and laboratory?
Samples are received in the laboratory daily and these contain chain of custody data. Sample analyses data is received monthly after all analyses are completed.

Is there documentation accompanying the data regarding any media changes, transcriptions, or flags which have been placed into the data before data are released to agency internal data processing?	☒	☐	

Describe the type of documentation. **Flysheets contain this information and are stored in the lab for reference when needed. Logbooks are maintained in the telemetry of any flagged data as well as flags being stored in the telemetry system program, Air Vision.**

How data are actually entered to the computer system (e.g., computerized transcription (copy from disk or data transfer device), manual entry, digitization of strip charts, or other)? **Manual entry**

b) Software Documentation

Question	Yes	No	Comment
Does your agency use any AQS Manual?	☐	☒	
Does your agency use any Air Now Manual?	☐	☒	
If yes, list the title of manual used including the, version number and date published.			
Does the agency have information on the reporting of precision and accuracy data available (i.e. AMP 255)?	☒	☐	Received from IEPA. CCDEC is establishing account to have access to these reports when needed.
What are the origins of the software used to prepare air monitoring data for release into the AQS and Air Now database? Please list the documentation for the software currently in use for data processing, including the names of the software packages, vendor or author, revision numbers, and the revision dates of the software. **DataEase is used to generate the reports with CCDEC transmit/submit to IEPA. IEPA then converts data to be reported to AQS.**			
What is the recovery capability in the event of a significant computer problem (i.e., how much time and data would be lost)? Data for the continuous monitoring sites is stored on Cook County's network and data retrieval should be with minimal delay. Non-continuous data is stored on flash drive and is available at all times for current year and 1 year previous.			
Has your agency tested the data processing software to ensure its performance of the intended function is consistent with the QA Handbook, Volume II, and Section 14.0?	☐	X	
Does your agency document software tests?	☐	X	
If yes, provide the documentation.			

c) Data Validation and Correction

Question	Yes	No	Comment
Have your agency established and document the validation criteria?	☐	☒	If yes, indicate document where such criteria can be found (title, revision date).
Does documentation exist on the identification and applicability of flags (i.e., identification of suspect values) within the data as recorded with the data in the computer files?	☐	☐	**See IEPA**
Does your agency document the data validation criteria including limits for values such as flow rates, calibration results, or range tests for ambient measurements?	☐	☐	**See IEPA**
If yes, please describe what action the data validation will take if he/she fined data with limits exceeded (e.g., flags, modifies, or delete, etc.) **Discussions would occur between Technical Services Manager, Quality Assurance Officer and the IEPA Air Division which could result in flags, modifying or deletions.**			
If yes, give examples to illustrate actions taken when limits were exceeded. **Recently data limits were exceeded at Taft Ozone monitoring site where the values did not match other monitor nearby. CCDEC conversed with IEPA regarding the nature and cause of this exceedence and data was deleted.**			
Please describe how changes made to data that were submitted to AQS and Air Now are documented. **Illinois EPA Function**			
Who has signature authority for approving corrections? **Illinois EPA Bureau of Air**			
Name:			Program Function:
What criteria are used to determine a data point is deleted? Discuss briefly. **See Illinois EPA**			
What criteria are used to determine if data need to be reprocessed? **Discuss. CCDEC consults Illinois EPA for this guidance.**			
Are corrected data resubmitted to the issuing group for cross-checking prior to release?	X	☐	

d) Data Processing

Question	Yes	No	Comment
Does the agency generate data summary reports?	☒	☐	

Please list at least three reports routinely generated, including the information requested below.

Report Title	Distribution	Period Covered
Data Recovery Report	**CCDEC Director, Deputy Director, IEPA**	**Monthly to CCDEC Quarterly to IEPA**
PARS Report	**CCDEC Director, Deputy Director, IEPA**	**Quarterly**
Continuous Data Summary	**CCDEC Director, Deputy Director, IEPA**	**Monthly**

Question	Yes	No	Comment
How often are data submitted to AQS and Air Now?			
Briefly comment on difficulties the agency may have encountered in coding and submitting data following the guidance of the AQS guidelines?			
Does the agency routinely request a hard copy printout on submitted data from AQS?	☒	☐	
Are records kept for at least 3 years by the agency in an orderly, accessible form?	☒	☐	
If yes, does this include raw data☒, calculation ☒, QC data☒, And reports☒?			
If no, please comment.			
Has your agency submitted data along with the appropriate calibration equations used to the processing center?	☐	☐	N/A
Are concentrations of pollutants (other than PM2.5) corrected to EPA standard temperature and pressure conditions (i.e., 298 K, 760 mm Hg) before input to AQS, and concentrations of PM2.5 reported to AQS under actual (volumetric) conditions?	☐	☐	
I) Are audits on data reduction procedure performed on a routine basis?	☐	☐	N/A
If yes, at what frequency?			
Are data precision and accuracy checked each time they are calculated, recorded, or transcribed to ensure that incorrect values are not submitted to EPA?	☒	☐	

e) Internal Reporting

What internal reports are prepared and submitted as a result of the audits required under 40 CFR 58, Appendix A?

Report Title	Frequency
FRM Flow Audits	Semi-Annuallyy
TSP Flow Audits	Semi-Annualy
Continuous Monitor Audits	Annually

What internal reports are prepared and submitted as a result of precision checks also required under 40 CFR 58, Appendix A?

Report Title	Frequency
Continuous Precision Checks	Weekly
Zero and Span Checks	Bi-weekly
FRM and TSP flow verifications	Monthly

Question	Yes	No	Comment
Do either the audit or precision check reports indicated include a discussion of corrective actions initiated based on audit or precision check results?	☒	☐	Monitoring Technicians discuss corrective action with each other and then share plans and actions with Technical Services Manager.

Who has the responsibility for the calculation and preparation of data summaries? To whom are such summaries delivered?

Name	Title	Type of Report	Recipient
Melody Carr	Administrative Assistant IV	PARS	Tech Services Manager & IEPA
Les Young	Tech Services Manager	Data Recovery Report	CCDEC Director, Deputy Director, IEPA
Lynn Schmitt and Karen Moore-Wright	Chemist/Auditor	Monthly Continuous Data Reports and graphs	CCDEC Director, Deputy Director, IEPA
Niaoka Young, Melody Carr and Les Young	P M 2.5 Analyst , Administrative Assistant IV, Technical Services Manager	Monthly Report of FRM sample analyses, Monthly Report of TSP/ Metals analyses	CCDEC Director, Deputy Director, IEPA

f) External Reporting

For the current calendar year or portion thereof which ended at least 90 calendar days prior to the receipt of this questionnaire, please provide the following percentages for required data submitted on time.

Percent Submitted on Time*			**Period Covered:**				
Monitoring Qtr.	**SO2**	**CO**	**O3**	**NO2**	**PM10**	**PM2.5**	**Pb**
1 (Jan 1 - March 31)	85		85	85		85	85
2 (Apr 1 - June 30)	85		85	85		85	85
3 (July 1 - Sept. 30)							
4 (Oct.1 - Dec. 31)							

***"On time" = within 90 calendar days after the end of the quarter in which the data were collected.**

For the same period, what fraction of the stations (by pollutant) reported less than 75% of the data (adjusted for seasonal monitoring and site start-ups and terminations)?

Percent of Stations <75% Data Recovery			**Period Covered:**				
Monitoring Qtr.	**SO2**	**CO**	**O3**	**NO2**	**PM10**	**PM2.5**	**Pb**
1 (Jan 1 - March 31)	0		0	0		0	0
2 (Apr 1 - June 30)	0		0	0		0	0
3 (July 1 - Sept. 30)							
4 (Oct.1 - Dec. 31)							

Identify the individual within the agency with the responsibility for reviewing and releasing the data.
Name: Les Young **Program Function: Technical Services Manager**

Question	**Yes**	**No**	**Comment**
Does your agency report the Air Quality Index?	☒	☐	
Has your agency submitted its annual data summary report as required in 40 CFR 58.15(b)?	☐	☐	
If yes, did your agency's annual report include the following:			
Annual precision and accuracy information (i.e. AMP 255) described in 40 CFR 58.15 (c)?	X	☐	
Location, date, pollution source and duration of all episodes reaching the significant harm levels?	☐	☐	N/A
Is Data Certification signed by a senior officer of your agency?	☐	X	

$PM_{2.5}$ Filter Weighing Laboratory
Evaluation Form for Validation Criteria

Evaluator: __James Burden_____ **Date:** __Audit conducted 11/20/13__

Signature: _____ **DCN# ESAT5.3.1.003**

References for Evaluation: 40 CFR Part 50, Appendix L; Quality Assurance Guidance Document 2.12 Monitoring $PM_{2.5}$ in Ambient Air Using Designated Reference or Class I Equivalent Methods; Quality Assurance Guidance Document, Method Compendium, Laboratory Standard Operating Procedures for the PM2.5 Performance Evaluation Program

Critical Validation Elements (to be reviewed during a data validation of no less than 5 data points)				
Elements:	**Yes**	**No**	**NA**	**Comments**
Post Sampling Weighing				
Filters weighed within 30 days? (rec'd ≤ 4° C)	X			Samples are tracked in a weighing logbook, a shipping logbook. If samples are received out of temperature requirements, this is noted in the shipping/receiving logbook.
Filters weighed within 10 days? (rec'd ≤ 25° C)	X			Samples are typically weighed within 2-3 days of receipt.
Filter Conditioning				
Pre- Equilibration (> 24 hours and according to lot stability test)	X			Filters are stabilized for 24 hours. No stability tests are conducted or recorded.
Post-Equilibration (> 24 hours and according to lot stability test)	X			Filters are stabilized for 24 hours. No stability tests are conducted or recorded.
Weighing Chamber Climate Control				
Temperature Range (24-hr mean 20-23 °C)	X			Temperature is recorded on three different devices. None of these devices had been recently calibrated. The primary chart recorder measures temperature in °F, rather than in °C. Analysts were not able to state what temperature limits were in °F when asked. Equipment in use: Supco Model #CR-TH2 Fisher Thermohygro Extech Psychiometer SN#9938518
Temperature Control (≤ 2° C SD over 24 hr)		X		No mean or SD temperature readings are being calculated currently.
Humidity Range (24-hr mean 30% - 40% RH or ≤ 5% sampling RH but > 20% RH)	X			Humidity is being measured by same devices as temperature. None of the currently used devices has had calibration checked in past year.
Humidity Control (≤ 5% SD* over 24 hr)		X		No mean or SD humidity readings are being calculated currently.
Pre- and Post Sampling RH Difference (24-hr means ≤ 5% RH	X			Duplicate weighings are being performed by a second analyst. These are recorded in the logbook.
Visual Defect Check (examples)	X			Analyst checks filters visually, but this is not recorded anywhere.
Balance kept in "on" status and in weighing room	X			Balances are kept on and checked for level each day. This level check is not documented anywhere.
Balance is grounded for static control	X			The balances are plugged into grounded electrical outlets. No exterior grounding devices were observed.
Print and review temperature and humidity graphs for two prior weighing sessions: The chart recorder has a plot line for temperature and humidity. A copy of this was requested during the audit. No mean or SD calculations were being done or tracked by the laboratory.				

Weighing room criteria Session 1:	24 Hour Temp Mean: _____° C		Temp SD _____	%RH mean _____%	RH SD _____
Weighing room criteria Session 2:	24 Hour Temp Mean: _____° C		Temp SD _____	%RH mean _____%	RH SD _____

Data logger functioning correctly, no repetitive measurements	X	X		All devices were functioning and displaying measurements. All devices require calibration and verification for readings to be defensible.

Critical Element Review Notes:
The three different temperature/humidity recording devices had different readings. When checked concurrently the Extech read 37%RH, the Fisher read 36% and the Supco read 40% on the digital readout, but the analog chart pen was recording 31%RH at the same time. While all of these reading were within the 30-40% RH criteria, none of these devices had been calibrated in the last year. When asked what would be done if one device read out and the other was in, no clear procedure was known.

The balances are both Sartorius model # MSE6.65 the serial numbers# were 27602611 and 27602612.

Operational Evaluation Elements

(to be reviewed during a data validation of no less than 5 data points)

Elements:	Yes	No	NA	Comments
Certifications				
Balance certified/calibrated semi-annually	X			The balances were both certified by the manufacturer on 07/18/13.
Weight standards certified annually		X		No check weights were present during audit for PM 2.5 program. The laboratories owned a set of reference weights that were not being used for PM2.5 and were out being certified. The balances internal calibration weight is not certified daily, nor is the internal calibration checked with an independent weight daily as required.
Data logger(s) calibrated/certified annually		X		None of the temperature and humidity data loggers have been certified in the last year.
Laboratory Quality Control Checks				
Laboratory blanks weighed in each session	X			A method blank filter is weighed each day at the end of each run and recorded in the logbook. The laboratory blank filters are kept for a period of one month.
Laboratory blanks within 15ug	X	X		The individual blank checked during the audit was within ±15 µg, but the analyst was not aware of the limit when asked. The limit is also not written in the logbook. The method blank shown on the day of audit showed a 5 µg deflection from the previous day's mass, which is acceptable.
Field blanks provided for 10% of filters shipped	X			The laboratory provides enough field blanks so that at least one per pay is weighed.
Field blanks within 30ug		X		When asked the analyst said field blanks should be within ±15 µg, but the limit was not posted in the logbook, nor was this information tracked.
Trip blanks provided for 5% of filters shipped		X		The laboratory does not provide trip blanks.
Trip blanks within 15ug		X		As the laboratory does not do trip blanks, no limit for them was set or known by the analysts.
Balance check (300mg and 500mg) conducted after every 10 weighings		X		The laboratory is not doing the required verifications of 300 and 500 mg independent weights every 10 weight measurements taken.
Balance checks within +/- 3ug of prior weight		X		The laboratory is not conducting the required checks and was not aware of the ±3µg limit for them when conducted.
Duplicate filter weighed each session	X			A duplicate filter is being weighed and recorded in the logbook for each run. The duplicate weighing is

				conducted by the second analyst.
Duplicate filter within 15ug	X	X		When asked, the analyst quoted a 15 µg limit for pre-exposure filters and a 30 µg limit for post-exposure.
Additional Quality Assurance Activities				
Quarterly check of working standard weights		X		The laboratory was not in possession of a set of certified weights for the PM2.5 program to conduct these verifications with. They do possess another set of weights for another program that were not being used for PM 2.5 work.
Graph verification between weighing sessions		X		No active data graphing is being done for quality control results of method blanks, duplicates or day to day comparisons of weighing room conditions. A chart recorder is being used for temperature and humidity, but it has not been certified.
Has laboratory analyst completed training?	X			The analysts are trained to Cook County's SOP located on their share drive (S:), which has a control date and revision number on it. The QA officer issues copies of the current SOP to staff and takes the old versions away so they cannot be used.
Laboratory cleaned monthly	X			The laboratory is cleaned weekly by the staff and this is documented on paper and on a file on the S: drive.
Laboratory extensive cleaning completed annually		X		No special annual cleaning procedure is in place above the regular cleaning and maintenance done by staff. Staff routinely changes the adhesive paper by the entrance door when needed. The laboratory is routinely cleaned with de-ionized water and wiped down each day. A swiffer floor cleaner is used weekly.

Operational Elements Review Notes:
The Sartorius balances do an automatic internal calibration based on an internal standard weight. This calibration is automatic and set to occur automatically whenever certain temperature or time criteria were met. It is recommended that the auto calibration feature be shut off and the analysts manually perform the internal calibration prior to filter weighing each day. The calibration factors must be altered during the weighing batch and should be verified by independent certified weights at 300 and 500 mg every ten weighings. These measurements should be added to the logbook.

The laboratory used polonium strips by each balance. The strips observed were NRD-LLC 14072 Model 14400-iso Po-210 dated August 2013. The staff changes these out every 6 months, which is appropriate.

The laboratory is not doing any active QC control charting of its data. These charts would be helpful to track trends and identify and errors and/or laboratory conditions that were drifting toward a control limit.

Data Review Elements
(examine prior months dataset)

Sufficient data was present to demonstrate criteria were addressed	X			The logbooks were all filled out in a timely fashion by the staff. Some additional documentation within the logbooks could be helpful (see comments in data review for suggestions).
Notes and log entries are legible and organized	X			
Electronic data is organized and backed up at defined frequency. What frequency? Where is it stored?		X		All data is in paper logbook and is hand entered into a proprietary computer program for the state of Illinois. The database is backed up to a thumb drive that is kept near the pc where data entry occurs. Both analyst use the same login information
Laboratory logbook current with detailed information	X			Additional fields are needed in the logbooks, such as units, temperature and humidity ranges, QC control limit ranges and the identity of the second analyst performing any review should be added.

Corrections are identified with single strike-through, correction, signature and date.		X		Corrections were being done with a cross out only. Any corrections should be crossed out with a single line and dated and initialed by the person making it.

Data Review Elements Notes:
Each analyst is assigned sites and weighs them back on the same balance each time. The analyst noted that when weight measurements occur, a circle is drawn in the logbook if the mass is below the required amount for a valid audit.

Evaluation Summary

$PM_{2.5}$ Weighing Laboratory Observations and Recommendations:

It is recommended that the laboratory add some additional information to the current logbooks. This information should include the units for any measurement taken (e.g. m^3 for volumes, temperature in °C, and units for mass in milligrams). The LIMS system does not display units either, but that is outside the control of the local laboratory as that program is provided by the state.

It is crucial that the certified check weights at 300 and 500 mg be done and recorded prior to any weighings taking place and every ten readings afterwards. These weighings should be ±3 ug of the true value.

The balance auto-calibration should be disabled and only performed manually by the analyst at the start of each weighing session. If the balance was recalibrated during a session, this would change the balances response.

All cross outs in logbooks should be dated and initialed at a minimum. Ideally, a reason for the correct should also be recorded when the correction is made.

It would be advisable to start the chain-of-custody (COC) for the filters when the initial weighing is done at the laboratory. The filters should then go out to the field under custody. This would track the entire life of the filter and could be done by adding the filter ID numbers to the forms already used (referred to as "fly sheets" by the staff).

It is recommended that the laboratory procure a small laboratory cart with sidewalls on three sides to set sample trays on while weighing sessions are being conducted. This could prevent a tray being knocked over inadvertently.

It is recommended that the analysts wear gloves when handling pans, even with the use of filter tongs. This can prevent the unintended transfer of moisture or oils from the fingers of the analyst to the pans or filters. It may be beneficial to have two sets of filters, one for clean filter use only, and keep the other for exposed (dirty) filters. Ideally these would be stored in plastic bags in the desiccators to avoid dust contamination.

Both analysts use the same password to enter data into the electronic system used to report values. It is recommended that each analyst have her own login, so that data entry could be tracked by person. The review of this data entry is reviewed by the second analyst, but this is not documented on the logbook. This could easily be fixed by adding a line for initial and date of analyst review.

The sample receiving area refrigerators are monitored for temperature, but the temperature measuring devices are not certified. The devices found in use were a Kenmore model 8790384 SN 583220844 and a Cole Parmer model 900-80-2 SN 72428943. The large stainless steel refrigerator uses a dial gauge thermometer that did not have a model or serial# marked on it.

The cooler temperatures are not monitored by a temperature reading, only by a small indicator that shows whether the cooler temperature condition was "good", "moderate" or "fail", but did not specify what temperatures these conditions represent. It is recommended that the laboratory acquire a hand held infrared thermometer which can measure the cooler temperatures, which should be recorded in the sample receipts records and ideally on the COC as well.

Attached QA Control Charts:

Working standards (low mass and high mass)	☐
Days to final weight	☐
Laboratory blanks	☐
Trip blanks	☐
Batch duplicates	☐
Weighing room temperature and standard deviation	☐
Weighing room humidity and standard deviation	☐

APPENDIX III – Organizational Chart

(Omitted to save paper. Please see page 5 of the completed TSA checklist)

APPENDIX IV - Network Design

Site Evaluations

Calibration Sheets and other Example Forms (Omitted to save paper. Electronic copies were provided by CCDEC and are available upon request.)

Site/Monitor Information Form

PQAO 0258

AQS Site Name ComEd

AQS Site Number 17-031-0076

Agency Site Name/No. _____
(if different than AQS Site Name/Number)

Site Address 7801 S. Lowndale Chicago

City & County Cook, Chicago

Site Coordinates 41° 45' 05" N -87° 42' 49" W
(specify lat/long or UTM)

Site Elevation (m) 622.8 ft

Criteria Pollutants Monitored O_3, SO_2, NO_2, $PM_{2.5}$

Other Parameters Met, CSN, Organic Carbon

Nearest Meteorological Site Onsite
('on site' is met tower present at this site)

Photographs to and from each cardinal direction attached? **Yes**
(Yes or No)

Name(s) of Report Preparer(s) **Bilal Qazzaz**

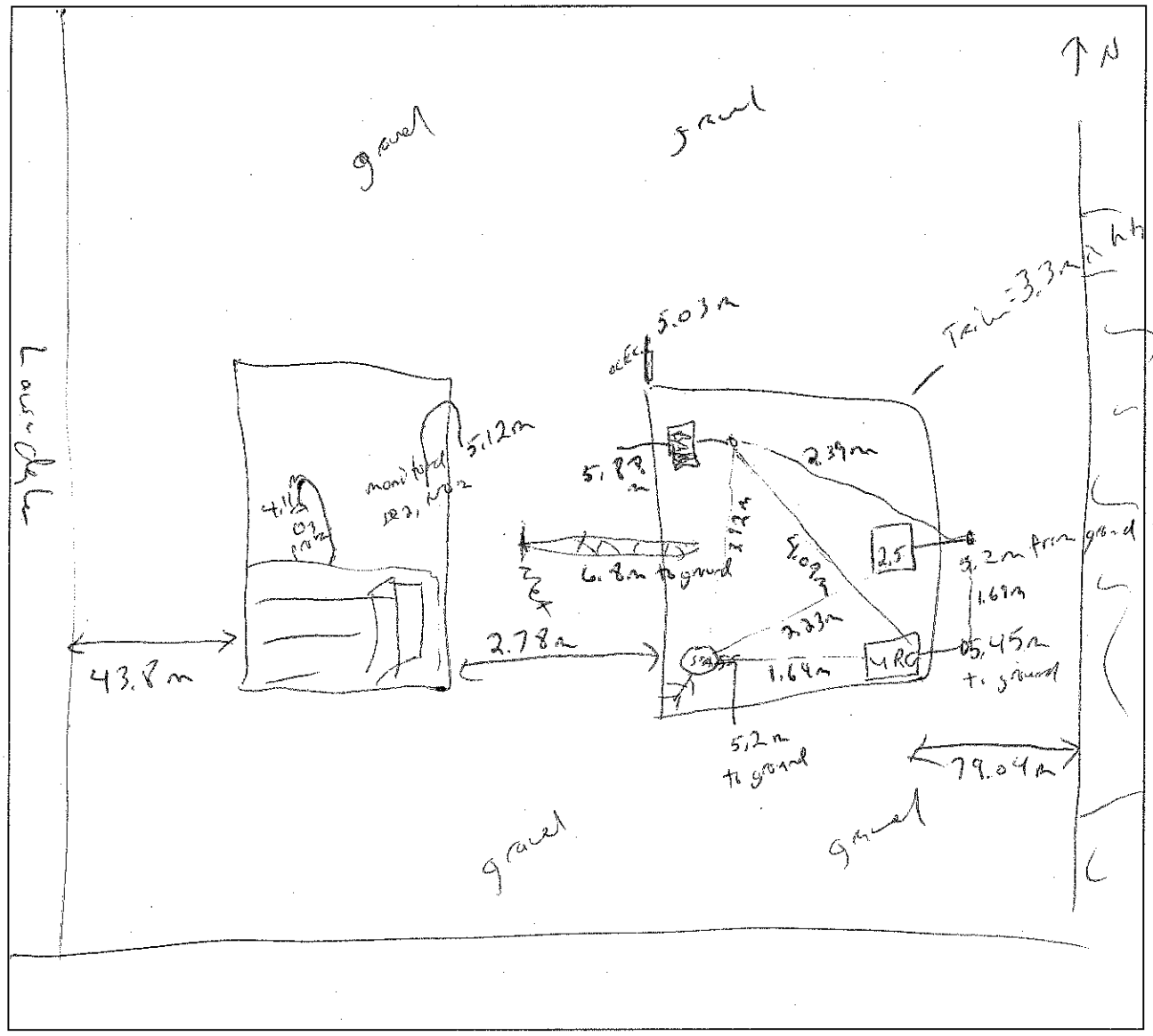
Name(s) of Auditors **Bilal Qazzaz, Basim Dihu, Anthony Ross, Scott Hamilton**

Date 11-21-13

Phone Number **312-353-2325**

Site Map

Draw map of site and surrounding terrain and features, up to 100 meters.



Map notes

Ozone Probe did not meet Part 58 Appendix E requirements for keeping a minimum distance of one meter from supporting structures.

Monitor Information

Pollutants

	O_3	SO_2	~~Thermo~~ NO_2	OCEC
Manufacturer	API	API	Thermo	Sunset
Model	400A	~~API~~ 100E	42i	Model 4F
Serial number	452	140	~~API~~ CM08190019	RT 3149
Scale of representation Micro, Middle, Neighborhood, Urban	**Neighborhood**	**Neighborhood**	**Neighborhood**	Neigh
Objective (Population, Max concentration, Background, Transport)	**Population**	**Population**	**Population**	Pop
Height of probe above ground(m)	4.11	5.12	5.12	5.03m
Distance from obstruction (m)	NA	NA	NA	NA
Type of obstruction (Wall, Tree, etc)				
Distance from roadway (m)	NA 43.8	NA 43.8	NA 43.8	
Unrestricted airflow (Yes, No)	Yes	Yes	Yes	Yes
Designation (NCore, SLAMS,etc)	**SLAMS**	**SLAMS**	**SLAMS**	SLAMS
Siting Criteria Met (Yes, No)	~~Yes~~ No	Yes	Yes	Yes

	PM 2.5	PM 2.5 Cont	Speciation	Speciation
Manufacturer	Met One Anderson	Met One	Met One	URG
Model	RAAS 2.5-100	E020	SSASS	3000N
Serial number	0065	C5378	E3478	3N-B0241
Scale of representation Micro, Middle, Neighborhood, Urban	Neigh	Neigh	Neigh	Neigh
Averaging time 1-, 8-, 24-hour	24hr.	1hr	24hr	24h.
Objective (Population, Max concentration, Background, Transport)	Pop	Pop	Pop	Pop
Height of probe above ground(m)	5.2	5.88	5.2	5.45m
Distance from obstruction (m)	NA	NA	NA	NA NA
Type of obstruction (Wall, Tree, etc)	NA	NA		
Distance from roadway (m)	43.8	43.8	43.8	
Unrestricted airflow (Yes, No)	Yes	Yes	Yes	Yes
Designation (NCore, SLAMS,etc)	SLAMS	Add	CSN	CSN
Siting Criteria Met (Yes, No)	Yes	Yes	Yes	Yes

Insert additional copies of table as needed

Area Information

Street Name	Traffic Count (Vehicles/day)
Lauderdale	
79th Street	

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Industry, Residential, Commercial, Agriculture
East	Industry, Residential, Commercial, Agriculture
South	Industry, Residential, Commercial, Agriculture
West	Industry, Residential, Commercial, Agriculture

Direction	Obstructions	Height (m)	Distance (m)
North			
East	N/A		
South			
West			

Note: This table is for large obstructions that affect the entire site, such as large clusters of trees or entire buildings. Individual obstructions, such as walls, single trees, other monitors, etc, should be entered in the Monitor Information table.

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North	hills, valleys, rivers	flat, rolling, rough
East	hills, valleys, rivers	flat, rolling, rough
South	hills, valleys, rivers	flat, rolling, rough
West	hills, valleys, rivers	flat, rolling, rough

Comments

N/A

Railroads Track to the East Freight not commuter

Site/Monitor Information Form

PQAO 0258

AQS Site Name Cicero

AQS Site Number 17-031-4002

Agency Site Name/No. _____
(if different than AQS Site Name/Number)

Site Address 1820 S. 51st, Cicero

City & County Cicero, Cook

Site Coordinates 41° 51' 20" N 87° 45' 8" W
(specify lat/long or UTM)

Site Elevation (m) 601.3 ft.

Criteria Pollutants Monitored Ozone, SO_2, NO_2

_____

Other Parameters Biowatch

Nearest Meteorological Site ComEd
('on site' is met tower present at this site)

Photographs to and from each cardinal direction attached? **Yes**
(Yes or No)

Name(s) of Report Preparer(s) **Bilal Qazzaz**

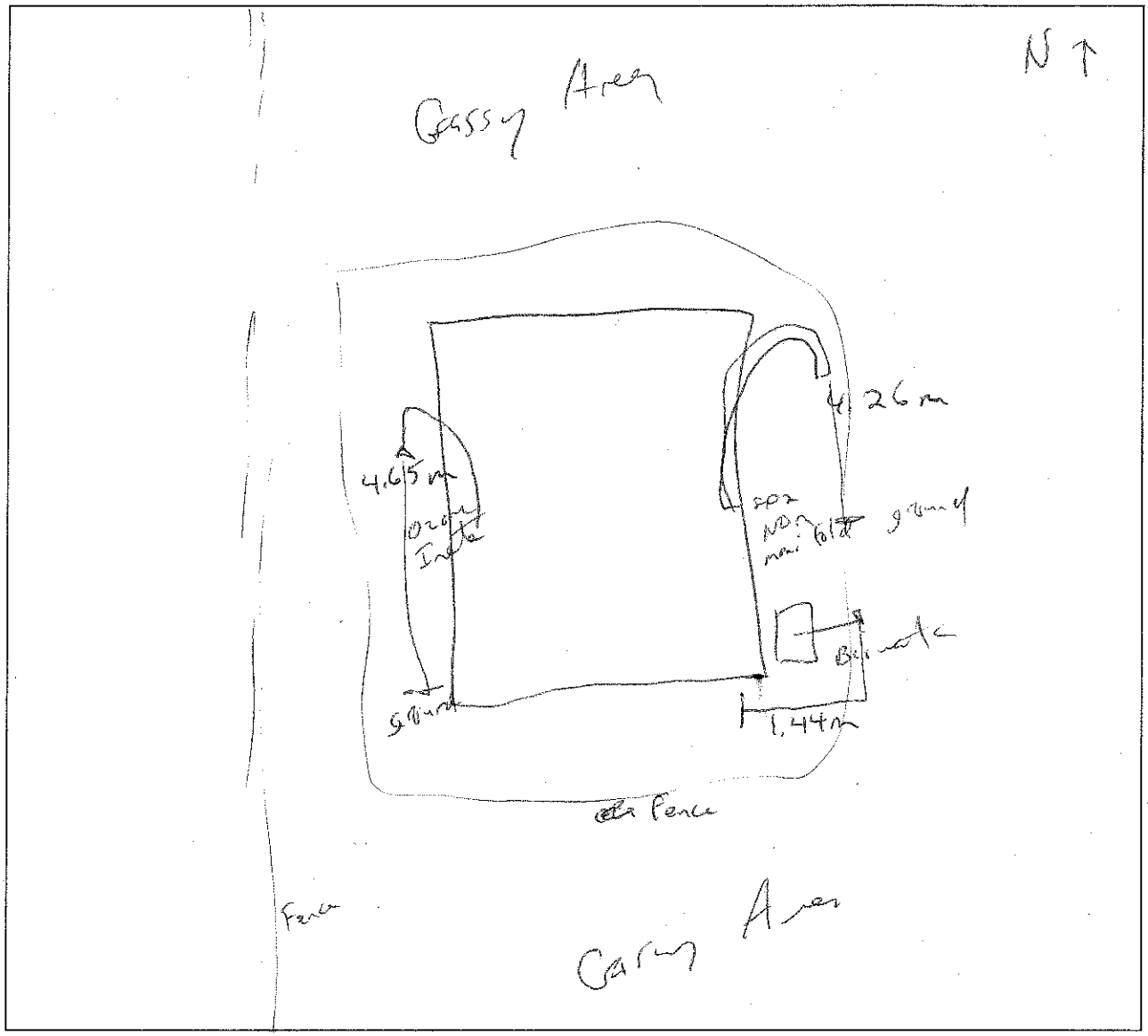
Name(s) of Auditors **Bilal Qazzaz, Basim Dihu, Anthony Ross, Scott Hamilton**

Date 11-20-13

Phone Number **312-353-2325**

Site Map

Draw map of site and surrounding terrain and features, up to 100 meters.



Map notes

Monitor Information

Pollutants

	O3	NO2	SO2
Manufacturer	~~Thermo~~ API	Thermo	API
Model	400E	42C	100E
Serial number	2918	67630-357	3370
Scale of representation Micro, Middle, Neighborhood, Urban	**Neighborhood**	**Neighborhood**	**Neighborhood**
Objective (Population, Max concentration, Background, Transport)	**Population**	**Population**	**Population**
Height of probe above ground(m)	4.65	4.26	4.26
Distance from obstruction (m)	NA	NA	NA
Type of obstruction (Wall, Tree, etc)	NA	NA	NA
Distance from roadway (m)	39	39	39
Unrestricted airflow (Yes, No)	Yes	Yes	Yes
Designation (NCore, SLAMS,etc)	**SLAMS**	**SLAMS**	**SLAMS**
Siting Criteria Met (Yes, No)	Yes	Yes	Yes

Manufacturer			
Model			
Serial number			
Scale of representation Micro, Middle, Neighborhood, Urban			
Averaging time 1-, 8-, 24-hour			
Objective (Population, Max concentration, Background, Transport)			
Height of probe above ground(m)			
Distance from obstruction (m)			
Type of obstruction (Wall, Tree, etc)			
Distance from roadway (m)			
Unrestricted airflow (Yes, No)			
Designation (NCore, SLAMS,etc)			
Siting Criteria Met (Yes, No)			

Insert additional copies of table as needed

Area Information

Street Name	Traffic Count (Vehicles/day)
57 st	
18th St	

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Industry, Residential, Commercial, Agriculture Park
East	Industry, Residential, Commercial, Agriculture
South	Industry, Residential, Commercial, Agriculture
West	Industry, Residential, Commercial, Agriculture

Direction	Obstructions	Height (m)	Distance (m)
North			
East	N/A		
South			
West			

Note: This table is for large obstructions that affect the entire site, such as large clusters of trees or entire buildings. Individual obstructions, such as walls, single trees, other monitors, etc, should be entered in the Monitor Information table.

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North	hills, valleys, rivers	flat, rolling, rough
East	hills, valleys, rivers N/A	flat, rolling, rough
South	hills, valleys, rivers	flat, rolling, rough
West	hills, valleys, rivers	flat, rolling, rough

Comments

Site/Monitor Information Form

PQAO 0258

AQS Site Name Lemont

AQS Site Number 17-031-1601

Agency Site Name/No.
(if different than AQS Site Name/Number)

Site Address 729 Houston Ave, Lemont

City & County Cemont, Cook

Site Coordinates 41° 40' 5" N 87° 59' 27" W
(specify lat/long or UTM)

Site Elevation (m) 735.1 ft

Criteria Pollutants Monitored O_3, SO_2

Other Parameters NA

Nearest Meteorological Site Alsip
('on site' is met tower present at this site)

Photographs to and from each cardinal direction attached? Yes
(Yes or No)

Name(s) of Report Preparer(s) **Bilal Qazzaz**

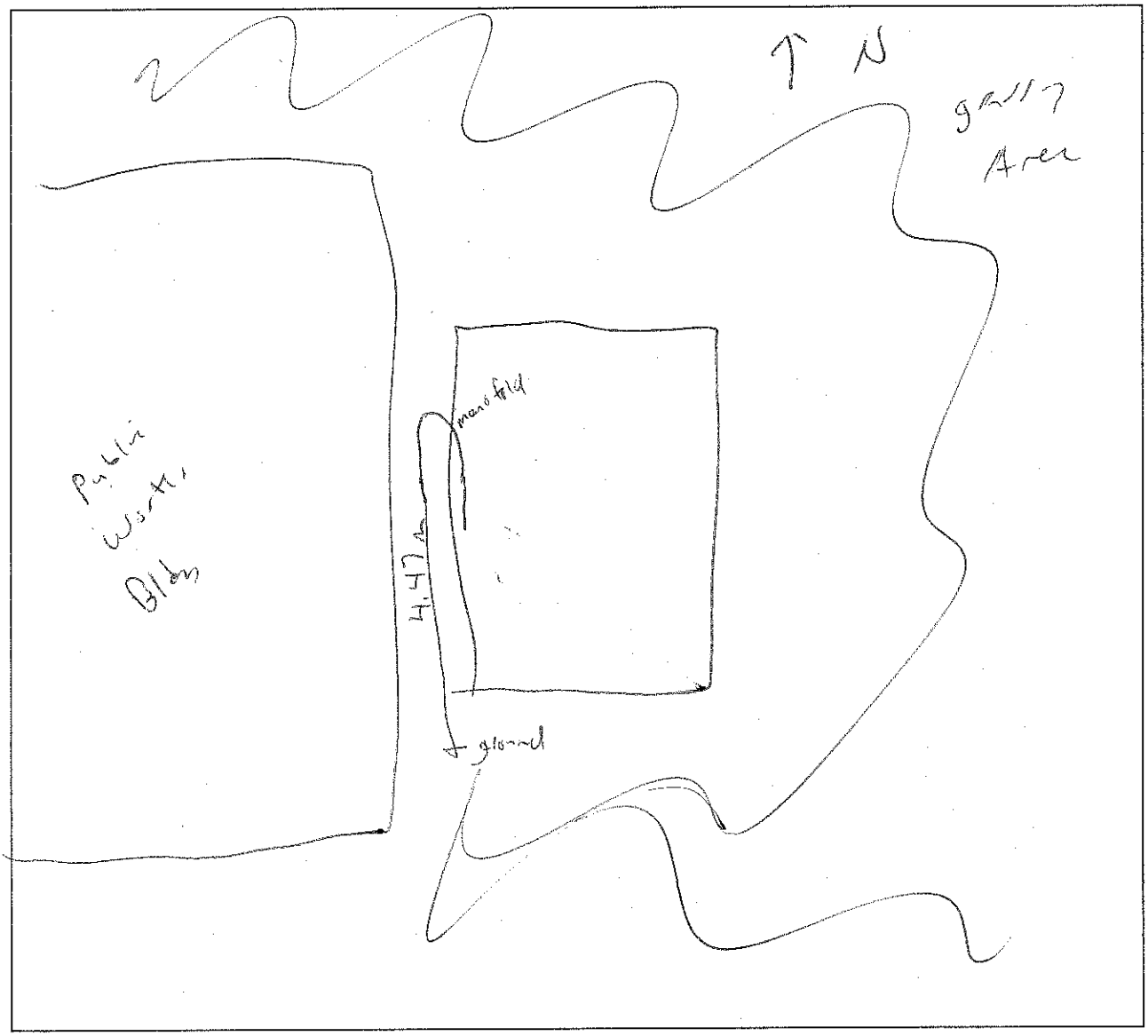
Name(s) of Auditors **Bilal Qazzaz, Basim Dihu, Anthony Ross, Scott Hamilton**

Date 11-20-13

Phone Number **312-353-2325**

Site Map

Draw map of site and surrounding terrain and features, up to 100 meters.



Map notes

Monitor Information

Pollutants

	O_3	SO_2	
Manufacturer	~~T400E~~ API	Perkin Elmer	
Model	400E	4108	
Serial number	225	582	
Scale of representation Micro, Middle, Neighborhood, Urban	**Neighborhood**	**Neighborhood**	**Neighborhood**
Objective (Population, Max concentration, Background, Transport)	**Population**	**Population**	**Population**
Height of probe above ground(m)	4.47	4.47	
Distance from obstruction (m)	NA	NA	
Type of obstruction (Wall, Tree, etc)			
Distance from roadway (m)	57.6	57.6	
Unrestricted airflow (Yes, No)	Yes	Yes	
Designation (NCore, SLAMS,etc)	**SLAMS**	**SLAMS**	**SLAMS**
Siting Criteria Met (Yes, No)	Yes	Yes	

Manufacturer			
Model			
Serial number			
Scale of representation Micro, Middle, Neighborhood, Urban			
Averaging time 1-, 8-, 24-hour			
Objective (Population, Max concentration, Background, Transport)			
Height of probe above ground(m)			
Distance from obstruction (m)			
Type of obstruction (Wall, Tree, etc)			
Distance from roadway (m)			
Unrestricted airflow (Yes, No)			
Designation (NCore, SLAMS,etc)			
Siting Criteria Met (Yes, No)			

Insert additional copies of table as needed

Area Information

Street Name	Traffic Count (Vehicles/day)
Houston St.	
Schultz St. - Schultz St.	

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Industry, Residential, Commercial, Agriculture
East	Industry, Residential, Commercial, Agriculture
South	Industry, Residential, Commercial, Agriculture
West	Industry, Residential, Commercial, Agriculture

Direction	Obstructions	Height (m)	Distance (m)
North			
East			
South			
West			

Note: This table is for large obstructions that affect the entire site, such as large clusters of trees or entire buildings. Individual obstructions, such as walls, single trees, other monitors, etc, should be entered in the Monitor Information table.

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North	hills, valleys, rivers	flat, rolling, rough
East	hills, valleys, rivers	flat, rolling, rough
South	hills, valleys, rivers	flat, rolling, rough
West	hills, valleys, rivers	flat, rolling, rough

N valley

E S W > NA

Comments

Site/Monitor Information Form

PQAO 0258

AQS Site Name Alsip

AQS Site Number 17-031-0801

Agency Site Name/No. _____
(if different than AQS Site Name/Number)

Site Address 12229 S. Orchard

City & County Alsip, Cook

Site Coordinates N 41° 40' 15.6" 87° 43' 57.7" W
(specify lat/long or UTM)

Site Elevation (m) 624.2 ft

Criteria Pollutants Monitored O_3, $PM_{2.5}$

Other Parameters Met

Nearest Meteorological Site Onsite
('on site' is met tower present at this site)

Photographs to and from each cardinal direction attached? **Yes**
(Yes or No)

Name(s) of Report Preparer(s) **Bilal Qazzaz**

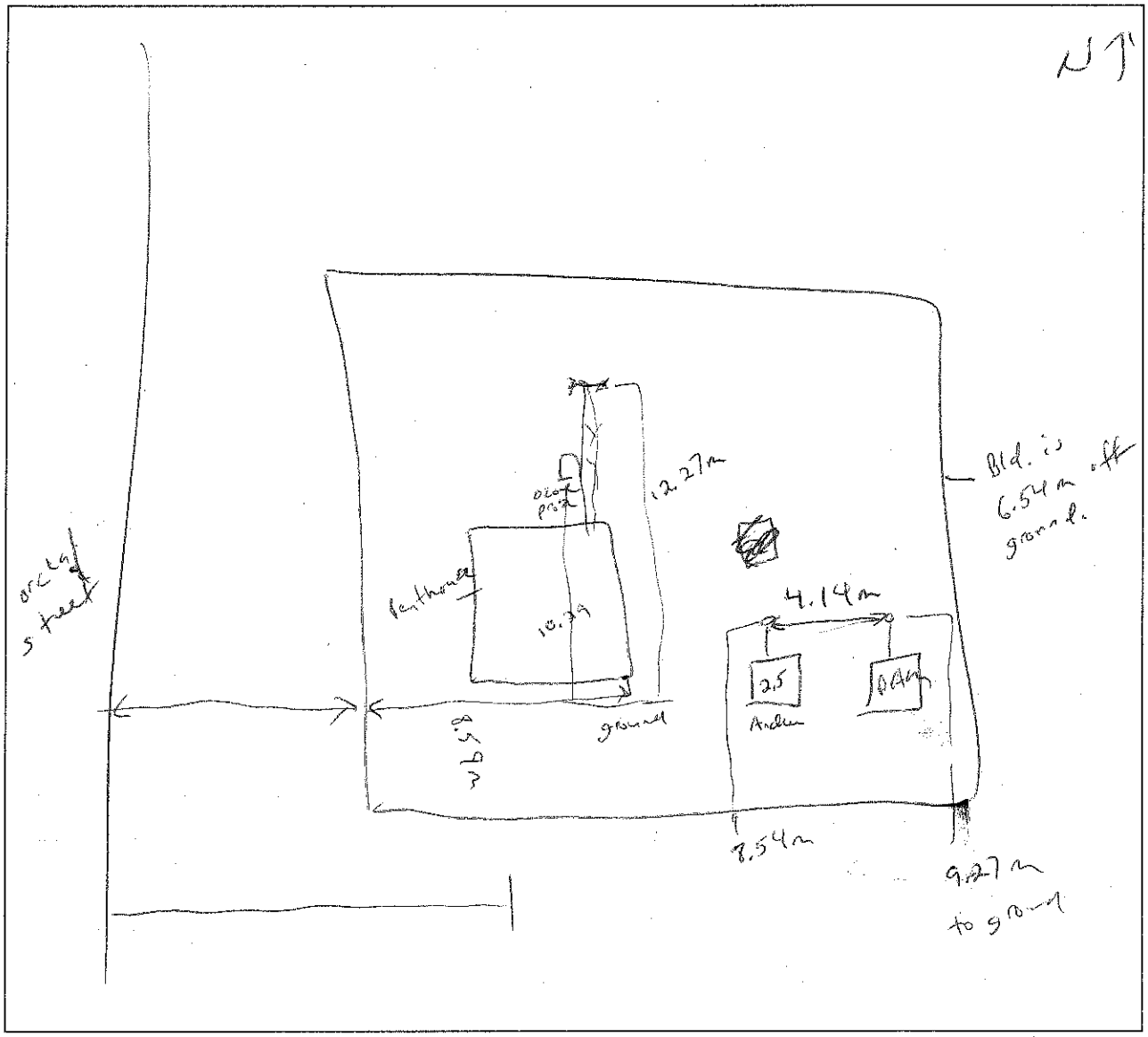
Name(s) of Auditors **Bilal Qazzaz, Basim Dihu, Anthony Ross, Scott Hamilton**

Date 11-21-13

Phone Number **312-353-2325**

Site Map

Draw map of site and surrounding terrain and features, up to 100 meters.



Map notes

Monitor Information

Pollutants

	O_3	2.5	2.5 Carb
Manufacturer	API	Andersen	Met One
Model	400A	RAAS-300	BAM 1020
Serial number	457	00237	B2449
Scale of representation Micro, Middle, Neighborhood, Urban	**Neighborhood**	**Neighborhood**	**Neighborhood**
Objective (Population, Max concentration, Background, Transport)	**Population**	**Population**	**Population**
Height of probe above ground(m)	10.29	8.54	9.27
Distance from obstruction (m)	N/A	N/A	N/A
Type of obstruction (Wall, Tree, etc)		N/A	
Distance from roadway (m)	21.74	21.74	21.74
Unrestricted airflow (Yes, No)	Yes	Yes	Yes
Designation (NCore, SLAMS,etc)	**SLAMS**	**SLAMS**	~~**SLAMS**~~ Alt
Siting Criteria Met (Yes, No)	Yes	Yes	Yes

Manufacturer			
Model			
Serial number			
Scale of representation Micro, Middle, Neighborhood, Urban			
Averaging time 1-, 8-, 24-hour			
Objective (Population, Max concentration, Background, Transport)			
Height of probe above ground(m)			
Distance from obstruction (m)			
Type of obstruction (Wall, Tree, etc)			
Distance from roadway (m)			
Unrestricted airflow (Yes, No)			
Designation (NCore, SLAMS,etc)			
Siting Criteria Met (Yes, No)			

Insert additional copies of table as needed

Area Information

Street Name	Traffic Count (Vehicles/day)
Orchard St	

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Industry, Residential, Commercial, Agriculture
East	Industry, Residential, Commercial, Agriculture
South	Industry, Residential, Commercial, Agriculture
West	Industry, Residential, Commercial, Agriculture

Direction	Obstructions	Height (m)	Distance (m)
North			
East			
South			
West			

Note: This table is for large obstructions that affect the entire site, such as large clusters of trees or entire buildings. Individual obstructions, such as walls, single trees, other monitors, etc, should be entered in the Monitor Information table.

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North	hills, valleys, rivers	flat, rolling, rough
East	hills, valleys, rivers	flat, rolling, rough
South	hills, valleys, rivers	flat, rolling, rough
West	hills, valleys, rivers	flat, rolling, rough

Comments

V) Site/Monitor Information Form

PQAO Cook County - DEC

AQS Site Name Summit

AQS Site Number 17-031-3301

Agency Site Name/No. GRAVES ELEMANTRY SCHOOL
(if different than AQS Site Name/Number)

Site Address 60th St & 74th AVE

City & County Summit, Cook County

Site Coordinates 41° 46' 58" N - 87° 48' 12" W
(specify lat/long or UTM)

Site Elevation (m)

Criteria Pollutants Monitored $PM_{2.5}$

Other Parameters NA

Nearst Meterological Site MIDWAY AIR PORT
('on site' is met tower present at this site)

Photographs to and from each cardinal direction attached? NO
(Yes or No)

Name(s) of Report Preparer(s) BASIM DIHA

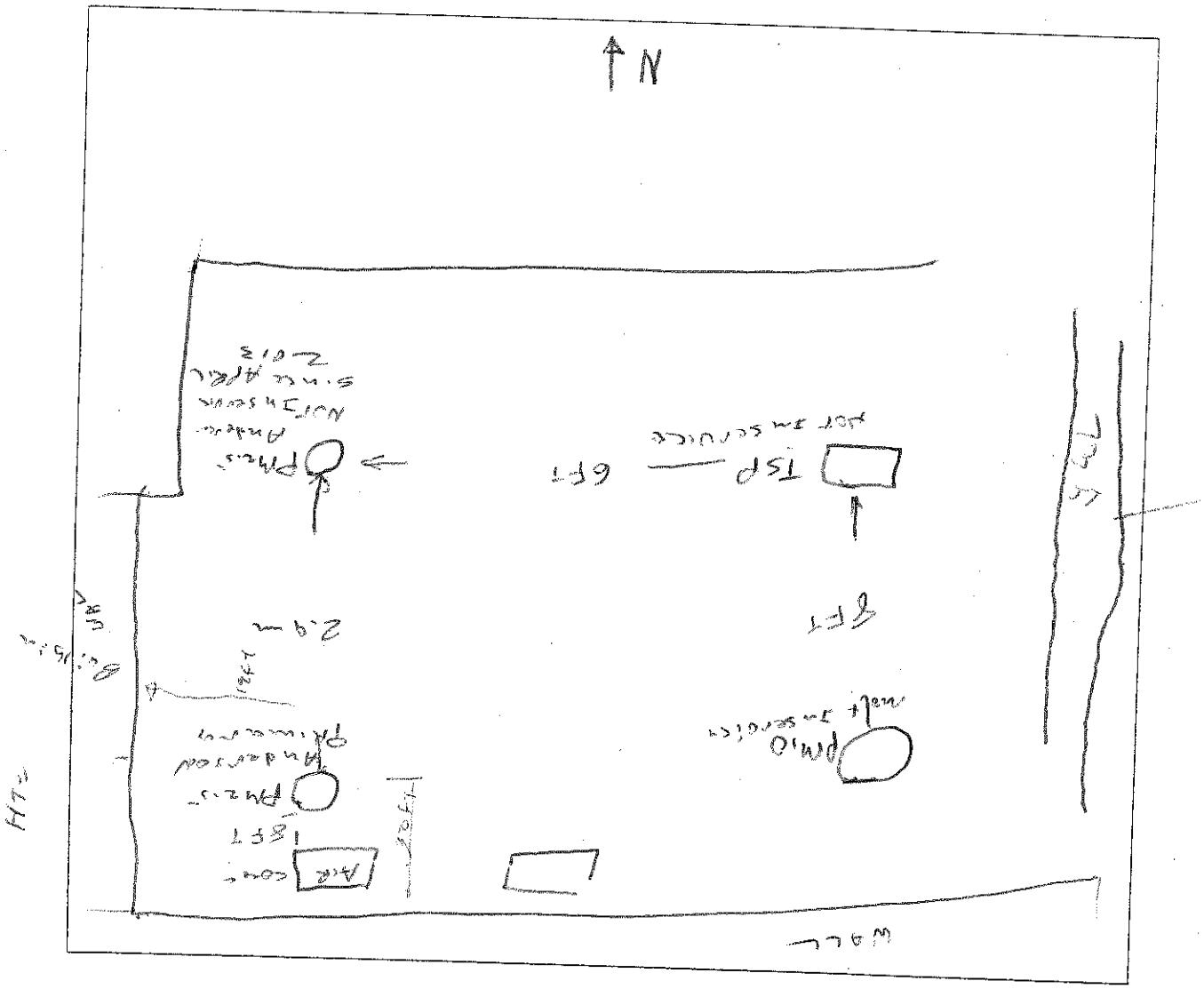
Name(s) of Auditors BASIM DIHA, ANTHONY ROSS, SCOTT HAMILTON & BILAL QAZZAZ

Date 11-21-13

Phone Number 312 886 6242

Site Map

Draw map of site and surrounding terrain and features, up to 100 meters.



Map notes

Monitor Information

Pollutants

	PM2.5	PM2.5	
Manufacturer	ANDERSON	Anderson	
Model	RASS 300 PM2.5	RASS	
Serial number	00155	00110	
Scale of representation MICro, MIDdle, Neighborhood, Urban	Nighbr		
Objective (Population, Max concentration, Background, Transport)	POPULATION	Will	
Height of probe above ground(m)	14FT + 6ft 4"	FM	
Distance from obstruction (m)	3eft.	use	
Type of obstruction (Wall, Tree, etc)	wall	Same	
Distance from roadway (m)	>150ft		
Unrestricted airflow (Yes, No)	No		
Designation (NCore, SLAMS,etc)	SLAMS		
Siting Criteria Met (Yes, No)	Yes		

Manufacturer			
Model			
Serial number			
Scale of representation MICro, MIDdle, Neighborhood, Urban			
Averaging time 1-, 8-, 24-hour			
Objective (Population, Max concentration, Background, Transport)			
Height of probe above ground(m)			
Distance from obstruction (m)			
Type of obstruction (Wall, Tree, etc)			
Distance from roadway (m)			
Unrestricted airflow (Yes, No)			
Designation (NCore, SLAMS,etc)			
Siting Criteria Met (Yes, No)			

Insert additional copies of table as needed

APPENDIX V- Data/Data Management
Precision and Accuracy Reports (AMP 255)
Data Completeness (AMP 430)
Field Blank Report (AMP 503)

Cook County Department of Environmental Control

Air Quality System (AQS) Data Review

Calendar Year 2011 through June 2013

Data Completeness -USEPA requires 75% of all measurements be present in AQS to satisfy quarterly/annual data completeness requirements as stipulated by 40 CFR Part 50.

Data Completeness 2011

# MONITOR TYPE	SITE ID	PARAMETER CODE	POC	PQAO	CITY	ADDRESS	METHOD CODE	DURATION CODE	PCT YEAR
SLAMS	17-031-0057	88101	1	Cook County Department of Environmental Control	Chicago	1745 N. SPRINGFIELD	120	7	83
SLAMS	17-031-4002	42401	1	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	100	1	89
SLAMS	17-031-6004	42101	1	Cook County Department of Environmental Control	Maywood	1505 S. FIRST AVENUE	93	1	89
SLAMS	17-031-2001	88101	1	Cook County Department of Environmental Control	Blue Island	12700 SACRAMENTO	120	7	90
SLAMS	17-031-6005	88101	1	Cook County Department of Environmental Control	Cicero	13TH ST. & 50TH AVE.	120	7	93
SLAMS	17-031-3301	88101	1	Cook County Department of Environmental Control	Summit	60TH ST. & 74TH AVE.	120	7	95
SLAMS	17-031-0076	88101	1	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	120	7	96
SLAMS	17-031-1601	44201	1	Cook County Department of Environmental Control	Lemont	729 HOUSTON	87	1	96
SLAMS	17-031-1003	44201	2	Cook County Department of Environmental Control	Chicago	6545 W. HURLBUT ST.	87	1	97
SLAMS	17-031-4002	42602	1	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	74	1	97
SLAMS	17-031-0022	14129	2	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	43	7	98
SLAMS	17-031-0026	14129	1	Cook County Department of Environmental Control	Chicago	735 W. HARRISON	43	7	98
SLAMS	17-031-0032	44201	1	Cook County Department of Environmental Control	Chicago	3300 E. CHELTENHAM	56	1	98

						PL.			
SLAMS	17-031-0052	88101	1	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	120	7	98
SLAMS	17-031-0076	42602	1	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	74	1	98
SLAMS	17-031-0110	14129	1	Cook County Department of Environmental Control	Chicago	1241 19th St.	0	7	98
SLAMS	17-031-4002	44201	1	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	87	1	98
SLAMS	17-031-6003	14129	1	Cook County Department of Environmental Control	Maywood	1500 MAYBROOK DR.	43	7	98
OTHER	17-031-0022	11101	2	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	91	7	98
UNKNOWN	17-031-0026	11101	1	Cook County Department of Environmental Control	Chicago	735 W. HARRISON	91	7	98
SLAMS	17-031-0001	44201	1	Cook County Department of Environmental Control	Alsip	4500 W. 123RD ST.	56	1	99
SLAMS	17-031-0064	44201	1	Cook County Department of Environmental Control	Chicago	5720 S. ELLIS AVE	56	1	99
SLAMS	17-031-0076	42401	1	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	61	1	99
SLAMS	17-031-0076	44201	1	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	87	1	99
SLAMS	17-031-1601	42401	1	Cook County Department of Environmental Control	Lemont	729 HOUSTON	61	1	99
SLAMS	17-031-4002	42101	1	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	93	1	99
SLAMS	17-031-0022	88101	1	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	120	7	100
SLAMS	17-031-0052	14129	1	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	43	7	100
SLAMS	17-031-0110	11101	1	Cook County Department of Environmental Control	Chicago	1241 19th St.	91	7	100

OTHER	17-031-0052	11101	1	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	91	7	100

Data Completeness 2012

# MONITOR TYPE	SITE ID	PARAMETER CODE	POC	PQAO	CITY	ADDRESS	METHOD CODE	DURATION CODE	PCT YEAR
SLAMS	17-031-6004	42101	1	Cook County Department of Environmental Control	Maywood	1505 S. FIRST AVENUE	93	1	60
SLAMS	17-031-4002	42401	1	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	100	1	63
SLAMS	17-031-0076	42602	1	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	74	1	83
SLAMS	17-031-0076	88101	1	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	120	7	83
SLAMS	17-031-4002	42602	1	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	74	1	84
SLAMS	17-031-1003	44201	2	Cook County Department of Environmental Control	Chicago	6545 W. HURLBUT ST.	87	1	89
SLAMS	17-031-6005	88101	1	Cook County Department of Environmental Control	Cicero	13TH ST. & 50TH AVE.	120	7	91
SLAMS	17-031-0076	42401	1	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	61	1	92
SLAMS	17-031-0022	88101	1	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	120	7	95
SLAMS	17-031-0026	14129	1	Cook County Department of Environmental Control	Chicago	735 W. HARRISON	43	7	95
SLAMS	17-031-0057	88101	1	Cook County Department of Environmental Control	Chicago	1745 N. SPRINGFIELD	120	7	95
SLAMS	17-031-0076	44201	1	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	87	1	95
SLAMS	17-031-	44201	1	Cook County Department of	Lemon	729 HOUSTON	87	1	95

Comment [USEPA1]: Only 50% of One Point QC Checks for CO reported for this site in AMP 255 Report for 2012. No CO annual performance evaluation audit was reported to AQS for 2012 for CO at this site.

Comment [USEPA2]: Only 65% of One Point QC Checks for SO2 reported for this site in AMP 255 for 2012.

Comment [USEPA3]: Only 42% of One Point QC Checks for NO2 reported for this site in AMP 255 for 2012. What is the data validation criteria based on? No NO2 annual performance evaluation audit was reported to AQS for 2012 for this site.

Comment [USEPA4]: Only 1 of 2 semi-annual flow rate audits reported for 2012.

Comment [USEPA5]: Only 31% of One Point QC Checks for NO2 reported for this site in AMP 255 for 2012. What is the data validation criteria based on? No NO2 annual performance evaluation audit was reported to AQS for 2012 for this site.

Comment [USEPA6]: Only 47% of One Point QC Checks for O3 reported for this site in AMP 255 for 2012.

Comment [USEPA7]: Only 1 of 2 semi-annual flow rate audits reported for 2012.

Comment [USEPA8]: Only 38% of One Point QC Checks for SO2 reported for this site in AMP 255 for 2012. No SO2 annual performance evaluation audit was reported to AQS for 2012 for this site.

Comment [USEPA9]: Only 1 of 2 semi-annual flow rate audits reported for 2012.

Comment [USEPA10]: Only 1 of 2 semi-annual flow rate audits reported for 2012.

Comment [USEPA11]: Only 73% of One Point QC Checks for O3 for this site were reported in AMP 255 for 2012.

	1601			Environmental Control	t				
UNKNOWN	17-031-0026	11101	1	Cook County Department of Environmental Control	Chicago	735 W. HARRISON	91	7	95
SLAMS	17-031-0052	14129	1	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	43	7	97
SLAMS	17-031-0052	88101	1	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	120	7	97
SLAMS	17-031-0110	14129	1	Cook County Department of Environmental Control	Chicago	1241 19th St.	0	7	97
SLAMS	17-031-1601	42401	1	Cook County Department of Environmental Control	Lemont	729 HOUSTON	61	1	97
SLAMS	17-031-2001	88101	1	Cook County Department of Environmental Control	Blue Island	12700 SACRAMENTO	120	7	97
SLAMS	17-031-4002	44201	1	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	87	1	97
SLAMS	17-031-6003	14129	1	Cook County Department of Environmental Control	Maywood	1500 MAYBROOK DR.	43	7	97
OTHER	17-031-0052	11101	1	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	91	7	97
SLAMS	17-031-0022	14129	2	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	43	7	98
SLAMS	17-031-0064	44201	1	Cook County Department of Environmental Control	Chicago	5720 S. ELLIS AVE	56	1	98
OTHER	17-031-0022	11101	2	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	91	7	98
SLAMS	17-031-0001	44201	1	Cook County Department of Environmental Control	Alsip	4500 W. 123RD ST.	56	1	99
SLAMS	17-031-0032	44201	1	Cook County Department of Environmental Control	Chicago	3300 E. CHELTENHAM PL.	56	1	99
SLAMS	17-031-4002	42101	1	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	93	1	99
SLAMS	17-031-0110	11101	1	Cook County Department of Environmental Control	Chicago	1241 19th St.	91	7	100

Comment [USEPA12]: Only 1 of 2 semi-annual flow rate audits reported for 2012.

Comment [USEPA13]: Only 1 of 2 semi-annual flow rate audits reported for 2012.

Comment [USEPA14]: Only 40% of One Point QC Checks for O3 reported for this site in AMP 255 for 2012.

Comment [USEPA15]: Only 1 of 2 Pb semi - annual flow audits reported for 2012.

Comment [USEPA16]: Only 93% of One Point QC Checks for O3 reported for this site in AMP 255 for 2012.

Comment [USEPA17]: Only 67% of One Point QC Checks for O3 reported for this site in AMP 255 for 2012.

Comment [USEPA18]: Only 87% of One Point QC Checks for O3 reported for this site in AMP 255 for 2012.

Comment [USEPA19]: Only 58% of One Point QC Checks for CO reported in AMP 255 for this site for 2012. What is the data validation criteria based on?

SLAMS	17-031-3301	88101	1	Cook County Department of Environmental Control	Summit	60TH ST. & 74TH AVE.	120	7	100	

Comment [USEPA20]: Only 1 of 2 semi-annual flow rate audits reported for 2012.

Data Completeness 2013 (January through June)

# MONITOR TYPE	SITE ID	PARAMETER CODE	POC	EPA REGION	PQAO	CITY	ADDRESS	METHOD CODE	DURATION CODE	PCT YEAR
SLAMS	17-031-3301	88101	9	5	Cook County Department of Environmental Control	Summit	60TH ST. & 74TH AVE.	120	7	60
SLAMS	17-031-0026	14129	1	5	Cook County Department of Environmental Control	Chicago	735 W. HARRISON	43	7	73
SLAMS	17-031-0052	14129	1	5	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	43	7	73
OTHER	17-031-0052	11101	1	5	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	91	7	73
UNKNOWN	17-031-0026	11101	1	5	Cook County Department of Environmental Control	Chicago	735 W. HARRISON	91	7	73
SLAMS	17-031-1003	44201	2	5	Cook County Department of Environmental Control	Chicago	6545 W. HURLBUT ST.	87	1	79
SLAMS	17-031-0022	88101	9	5	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	120	7	80
SLAMS	17-031-0022	88101	1	5	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	120	7	87
SLAMS	17-	88101	9	5	Cook County Department of	Chica	4850 WILSON	117	7	87

Comment [USEPA21]: No semi-annual flow rate audits reported for first half of 2013.

Comment [USEPA22]: No semi-annual flow rate audits reported for first half of 2013.

Comment [USEPA23]: No semi-annual flow rate audits reported for first half of 2013.

Comment [USEPA24]: No semi-annual flow rate audits reported for first half of 2013.

Comment [USEPA25]: No semi-annual flow rate audits reported for first half of 2013.

	031-0052				Environmental Control	go	AVE.			
SLAMS	17-031-0001	44201	1	5	Cook County Department of Environmental Control	Alsip	4500 W. 123RD ST.	87	1	90
SLAMS	17-031-0022	14129	2	5	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	43	7	93
SLAMS	17-031-0110	14129	9	5	Cook County Department of Environmental Control	Chicago	1241 19th St.	43	7	93
SLAMS	17-031-6003	11101	1	5	Cook County Department of Environmental Control	Maywood	1500 MAYBROOK DR.	91	7	93
SLAMS	17-031-6003	14129	1	5	Cook County Department of Environmental Control	Maywood	1500 MAYBROOK DR.	43	7	93
OTHER	17-031-0022	11101	2	5	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	91	7	93
SLAMS	17-031-4002	42602	1	5	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	74	1	94
SLAMS	17-031-0076	88101	1	5	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	120	7	96
SLAMS	17-031-4002	42401	1	5	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	100	1	96
SLAMS	17-031-6005	88101	1	5	Cook County Department of Environmental Control	Cicero	13TH ST. & 50TH AVE.	120	7	96
SLAMS	17-031-	44201	1	5	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	87	1	97

	0076									
SLAMS	17-031-1601	44201	1	5	Cook County Department of Environmental Control	Lemont	729 HOUSTON	87	1	97
SLAMS	17-031-2001	88101	1	5	Cook County Department of Environmental Control	Blue Island	12700 SACRAMENTO	120	7	97
SLAMS	17-031-4002	44201	1	5	Cook County Department of Environmental Control	Cicero	1820 S. 51ST AVE.	87	1	97
SLAMS	17-031-0052	88101	1	5	Cook County Department of Environmental Control	Chicago	4850 WILSON AVE.	120	7	98
SLAMS	17-031-0057	88101	1	5	Cook County Department of Environmental Control	Chicago	1745 N. SPRINGFIELD	120	7	98
SLAMS	17-031-0076	42401	1	5	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	0	1	98
SLAMS	17-031-0076	42602	1	5	Cook County Department of Environmental Control	Chicago	7801 LAWNDALE	74	1	98
SLAMS	17-031-3301	88101	1	5	Cook County Department of Environmental Control	Summit	60TH ST. & 74TH AVE.	120	7	98
SLAMS	17-031-0032	44201	1	5	Cook County Department of Environmental Control	Chicago	3300 E. CHELTENHAM PL.	56	1	99
SLAMS	17-031-0064	44201	1	5	Cook County Department of Environmental Control	Chicago	5720 S. ELLIS AVE	0	1	99
SLAMS	17-031-1601	42401	1	5	Cook County Department of Environmental Control	Lemont	729 HOUSTON	61	1	99

Comment [USEPA26]: No semi-annual flow rate audits reported for first half of 2013.

SLAMS	17-031-0001	88101	1	5	Cook County Department of Environmental Control	Alsip	4500 W. 123RD ST.	120	7	100
SLAMS	17-031-0022	14129	9	5	Cook County Department of Environmental Control	Chicago	3535 E. 114TH ST.	43	7	100
SLAMS	17-031-0110	11101	1	5	Cook County Department of Environmental Control	Chicago	1241 19th St.	91	7	100
SLAMS	17-031-0110	14129	1	5	Cook County Department of Environmental Control	Chicago	1241 19th St.	43	7	100
SLAMS	17-031-6003	14129	9	5	Cook County Department of Environmental Control	Maywood	1500 MAYBROOK DR.	43	7	100

Comment [USEPA27]: No semi-annual flow rate audits reported for first half of 2013.

Comment [USEPA28]: No semi-annual flow rate audits reported for first half of 2013.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: REA

DATA COMPLETENESS REPORT

Report Request ID: 1149218

Report Code: AMP430

Nov. 13, 2013

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
CRITERIA			

AGENCY SELECTIONS

Cook County Department of Environmental Control

SELECTED OPTIONS

Option Type	Option Value
OZONE EVALUATION	SEASONAL-HOURLY
AGENCY ROLE	PQAO
MERGE PDF FILES	YES

SORT ORDER

Order	Column
1	EPA_REGION
2	STATE_CODE
3	MONITOR_TYPE
4	COUNTY_CODE
5	SITE_ID
6	PARAMETER_CODE
7	POC

GLOBAL DATES

Start Date	End Date
2013 01	2013 06

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS NOT REPORTING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2013 THRU JUN. 30, 2013
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0001	44201	Ozone	1	1				654	735	582							1971
Alsip				087				91%	99%	81%							90%
4500 W. 123RD ST.																	
17-031-0001	88101	PM2.5 - Local Conditions	1	7				5	5	5							15
Alsip				120				100%	100%	100%							100%
4500 W. 123RD ST.																	
17-031-0022	14129	Lead (TSP) LC	2	7	5	5	5	4	5	4							28
Chicago				043	100%	100%	100%	80%	100%	80%							93%
3535 E. 114TH ST.																	
17-031-0022	14129	Lead (TSP) LC	9	7	5	5	5										15
Chicago				043	100%	100%	100%										100%
3535 E. 114TH ST.																	
17-031-0022	88101	PM2.5 - Local Conditions	1	7	5	5	5	10	5	10							40
Chicago				120	100%	100%	100%	100%	45%	100%							87%
3535 E. 114TH ST.																	
17-031-0022	88101	PM2.5 - Local Conditions	9	7				5	2	5							12
Chicago				120				100%	40%	100%							80%
3535 E. 114TH ST.																	
17-031-0026	14129	Lead (TSP) LC	1	7	5	5	1										11
Chicago				043	100%	100%	20%										73%
735 W. HARRISON																	
17-031-0032	44201	Ozone	1	1				714	737	714							2165
Chicago				056				99%	99%	99%							99%
3300 E. CHELTENHAM PL.																	
17-031-0052	14129	Lead (TSP) LC	1	7	5	5	1										11
Chicago				043	100%	100%	20%										73%
4850 WILSON AVE.																	
17-031-0052	88101	PM2.5 - Local Conditions	1	7	31	27	31	10	10	10							119
Chicago				120	100%	96%	100%	100%	91%	100%							98%
4850 WILSON AVE.																	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2013 THRU JUN. 30, 2013
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0052	88101	PM2.5 - Local Conditions	9	7	4	4	5										13
Chicago				117	80%	80%	100%										87%
4850 WILSON AVE.																	
17-031-0057	88101	PM2.5 - Local Conditions	1	7	11	8	10	5	5	5							44
Chicago				120	100%	89%	100%	100%	100%	100%							98%
1745 N. SPRINGFIELD																	
17-031-0064	44201	Ozone	1	1				711	734	714							2159
Chicago				000				99%	99%	99%							99%
5720 S. ELLIS AVE																	
17-031-0076	42401	Sulfur dioxide	1	1	729	661	729	708	738	710							4275
Chicago				000	98%	98%	98%	98%	99%	99%							98%
7801 LAWNDALE																	
17-031-0076	42602	Nitrogen dioxide (NO2)	1	1	725	660	736	704	732	708							4265
Chicago				074	97%	98%	99%	98%	98%	98%							98%
7801 LAWNDALE																	
17-031-0076	44201	Ozone	1	1				699	735	693							2127
Chicago				087				97%	99%	96%							97%
7801 LAWNDALE																	
17-031-0076	88101	PM2.5 - Local Conditions	1	7	10	8	10	5	5	5							43
Chicago				120	91%	89%	100%	100%	100%	100%							96%
7801 LAWNDALE																	
17-031-0110	11101	Suspended particulate (TSP)	1	7	5	5	5	5	5	5							30
Chicago				091	100%	100%	100%	100%	100%	100%							100%
1241 19th St.																	
17-031-0110	14129	Lead (TSP) LC	1	7	5	5	5	5	5	5							30
Chicago				043	100%	100%	100%	100%	100%	100%							100%
1241 19th St.																	
17-031-0110	14129	Lead (TSP) LC	9	7				5	5	4							14
Chicago				043				100%	100%	80%							93%
1241 19th St.																	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2013 THRU JUN. 30, 2013
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-1003	44201	Ozone	2	1				713	593	410							1716
Chicago				087				99%	80%	57%							79%
6545 W. HURLBUT ST.																	
17-031-1601	42401	Sulfur dioxide	1	1	742	665	739	715	738	714							4313
Lemont				061	100%	99%	99%	99%	99%	99%							99%
729 HOUSTON																	
17-031-1601	44201	Ozone	1	1				714	735	680							2129
Lemont				087				99%	99%	94%							97%
729 HOUSTON																	
17-031-2001	88101	PM2.5 - Local Conditions	1	7	11	9	9										29
Blue Island				120	100%	100%	90%										97%
12700 SACRAMENTO																	
17-031-3301	88101	PM2.5 - Local Conditions	1	7	11	9	10	9	11	10							60
Summit				120	100%	100%	100%	90%	100%	100%							98%
60TH ST. & 74TH AVE.																	
17-031-3301	88101	PM2.5 - Local Conditions	9	7	5	3	10										18
Summit				120	45%	33%	100%										60%
60TH ST. & 74TH AVE.																	
17-031-4002	42401	Sulfur dioxide	1	1	738	667	619	713	729	714							4180
Cicero				100	99%	99%	83%	99%	98%	99%							96%
1820 S. 51ST AVE.																	
17-031-4002	42602	Nitrogen dioxide (NO2)	1	1	510	666	738	713	731	714							4072
Cicero				074	69%	99%	99%	99%	98%	99%							94%
1820 S. 51ST AVE.																	
17-031-4002	44201	Ozone	1	1				708	707	714							2129
Cicero				087				98%	95%	99%							97%
1820 S. 51ST AVE.																	
17-031-6003	11101	Suspended particulate (TSP)	1	7	5	5	3	5	5	5							28
Maywood				091	100%	100%	60%	100%	100%	100%							93%
1500 MAYBROOK DR.																	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2013 THRU JUN. 30, 2013
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-6003	14129	Lead (TSP) LC	1	7	5	5	3	5	5	5							28
Maywood				043	100%	100%	60%	100%	100%	100%							93%
1500 MAYBROOK DR.																	
17-031-6003	14129	Lead (TSP) LC	9	7	5	5	5										15
Maywood				043	100%	100%	100%										100%
1500 MAYBROOK DR.																	
17-031-6005	88101	PM2.5 - Local Conditions	1	7	9	9	10	5	5	5							43
Cicero				120	82%	100%	100%	100%	100%	100%							96%
13TH ST. & 50TH AVE.																	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2013 THRU JUN. 30, 2013
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: OTHER

SITE ID / CITY / ADDRESS	PARAMETER	POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0022	11101 Suspended particulate (TSP)	2	7	5	5	5	4	5	4							28
Chicago			091	100%	100%	100%	80%	100%	80%							93%
3535 E. 114TH ST.																
17-031-0052	11101 Suspended particulate (TSP)	1	7	5	5	1										11
Chicago			091	100%	100%	20%										73%
4850 WILSON AVE.																

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2013 THRU JUN. 30, 2013
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: UNKNOWN

SITE ID / CITY / ADDRESS	PARAMETER	POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0026	11101 Suspended particulate (TSP)	1	7	5	5	1										11
Chicago			091	100%	100%	20%										73%
735 W. HARRISON																

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

REPORT SUMMARY

DATE RANGE: JAN. 01, 2013 THRU JUN. 30, 2013
REGION: (05) CHICAGO
STATE: Illinois
PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	2	0	2	96.5%
14129	Lead (TSP) LC	8	0	6	90.6%
42401	Sulfur dioxide	3	0	3	97.7%
42602	Nitrogen dioxide (NO2)	2	0	2	96.0%
44201	Ozone	7	0	7	94.0%
88101	PM2.5 - Local Conditions	11	0	10	90.6%
MT SUMMARY:	SLAMS	33	0	30	92.7%

MONITOR TYPE: OTHER

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	2	0	1	83.0%
MT SUMMARY:	OTHER	2	0	1	83.0%

MONITOR TYPE: UNKNOWN

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	1	0	0	73.0%
MT SUMMARY:	UNKNOWN	1	0	0	73.0%
PQAO SUMMARY	Cook County Department of Environmental Contr	36	0	31	91.6%
STATE SUMMARY:	Illinois	36	0	31	91.6%
REGION SUMMARY:	(05) CHICAGO	36	0	31	91.6%
REPORT SUMMARY:		36	0	31	91.6%

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: REA

DATA COMPLETENESS REPORT

Report Request ID: 1149215

Report Code: AMP430

Nov. 13, 2013

PROTOCOL SELECTIONS			
Parameter Classification	Parameter	Method	Duration
CRITERIA			

AGENCY SELECTIONS
Cook County Department of Environmental Control

SELECTED OPTIONS	
Option Type	Option Value
OZONE EVALUATION	SEASONAL-HOURLY
AGENCY ROLE	PQAO
MERGE PDF FILES	YES

SORT ORDER	
Order	Column
1	EPA_REGION
2	STATE_CODE
3	MONITOR_TYPE
4	COUNTY_CODE
5	SITE_ID
6	PARAMETER_CODE
7	POC

GLOBAL DATES	
Start Date	End Date
2011 01	2011 12

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS NOT REPORTING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2011 THRU DEC. 31, 2011
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0001	44201	Ozone	1	1				716	739	700	740	738	716	740			5089
Alsip				056				99%	99%	97%	99%	99%	99%	99%			99%
4500 W. 123RD ST.																	
17-031-0022	14129	Lead (TSP) LC	2	7	4	5	5	5	5	5	5	6	5	5	5	5	60
Chicago				043	80%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%
3535 E. 114TH ST.																	
17-031-0022	88101	PM2.5 - Local Conditions	1	7	5	5	5	5	5	5	5	6	5	5	5	5	61
Chicago				120	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3535 E. 114TH ST.																	
17-031-0026	14129	Lead (TSP) LC	1	7	5	5	5	5	5	4	5	6	5	5	5	5	60
Chicago				043	100%	100%	100%	100%	100%	80%	100%	100%	100%	100%	100%	100%	98%
735 W. HARRISON																	
17-031-0032	44201	Ozone	1	1				690	739	711	696	738	713	736			5023
Chicago				056				96%	99%	99%	94%	99%	99%	99%			98%
3300 E. CHELTENHAM PL.																	
17-031-0052	14129	Lead (TSP) LC	1	7	5	5	5	5	5	5	5	6	5	5	5	5	61
Chicago				043	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4850 WILSON AVE.																	
17-031-0052	88101	PM2.5 - Local Conditions	1	7	28	26	31	30	31	30	31	31	30	31	30	29	358
Chicago				120	90%	93%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	98%
4850 WILSON AVE.																	
17-031-0057	88101	PM2.5 - Local Conditions	1	7	10	7	11	10	10	10	10	11	9	8	4		100
Chicago				120	100%	78%	100%	100%	100%	100%	100%	100%	90%	80%	40%		83%
1745 N. SPRINGFIELD																	
17-031-0064	44201	Ozone	1	1				710	738	713	733	735	715	739			5083
Chicago				056				99%	99%	99%	99%	99%	99%	99%			99%
5720 S. ELLIS AVE																	
17-031-0076	42401	Sulfur dioxide	1	1	739	668	740	713	727	715	715	740	716	732	718	744	8667
Chicago				061	99%	99%	99%	99%	98%	99%	96%	99%	99%	98%	100%	100%	99%
7801 LAWNDALE																	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2011 THRU DEC. 31, 2011
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0076	42602	Nitrogen dioxide (NO2)	1	1	739	667	735	714	737	714	734	725	714	735	668	744	8626
Chicago				074	99%	99%	99%	99%	99%	99%	99%	97%	99%	99%	93%	100%	98%
7801 LAWNDALE																	
17-031-0076	44201	Ozone	1	1				716	740	715	731	724	716	736			5078
Chicago				087				99%	99%	99%	98%	97%	99%	99%			99%
7801 LAWNDALE																	
17-031-0076	88101	PM2.5 - Local Conditions	1	7	9	9	11	10	10	9	9	11	10	10	10	8	116
Chicago				120	90%	100%	100%	100%	100%	90%	90%	100%	100%	100%	100%	80%	96%
7801 LAWNDALE																	
17-031-0110	11101	Suspended particulate (TSP)	1	7	5	5	9	9	10	10	8	12	10	7	10	10	105
Chicago				091	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1241 19th St.																	
17-031-0110	14129	Lead (TSP) LC	1	7	5	5	5	5	5	5	5	6	5	4	5	5	60
Chicago				000	100%	100%	100%	100%	100%	100%	100%	100%	100%	80%	100%	100%	98%
1241 19th St.																	
17-031-1003	44201	Ozone	2	1				679	736	714	726	736	637	741			4969
Chicago				087				94%	99%	99%	98%	99%	88%	100%			97%
6545 W. HURLBUT ST.																	
17-031-1601	42401	Sulfur dioxide	1	1	740	666	740	715	742	713	739	740	717	740	717	740	8709
Lemont				061	99%	99%	99%	99%	100%	99%	99%	99%	100%	99%	100%	99%	99%
729 HOUSTON																	
17-031-1601	44201	Ozone	1	1				714	741	713	739	726	580	739			4952
Lemont				087				99%	100%	99%	99%	98%	81%	99%			96%
729 HOUSTON																	
17-031-2001	88101	PM2.5 - Local Conditions	1	7	10	7	8	10	10	9	8	11	10	8	9	9	109
Blue Island				120	100%	78%	73%	100%	100%	90%	80%	100%	100%	80%	90%	90%	90%
12700 SACRAMENTO																	
17-031-3301	88101	PM2.5 - Local Conditions	1	7	10	7	11	8	10	9	9	11	10	10	10	10	115
Summit				120	100%	78%	100%	80%	100%	90%	90%	100%	100%	100%	100%	100%	95%
60TH ST. & 74TH AVE.																	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2011 THRU DEC. 31, 2011
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-4002	42101	Carbon monoxide	1	1	738	668	740	716	712	696	711	738	715	743	720	744	8641
Cicero				093	99%	99%	99%	99%	96%	97%	96%	99%	99%	100%	100%	100%	99%
1820 S. 51ST AVE.																	
17-031-4002	42401	Sulfur dioxide	1	1	737	668	738	708	737	681	689	737	712	742	620		7769
Cicero				100	99%	99%	99%	98%	99%	95%	93%	99%	99%	100%	86%		89%
1820 S. 51ST AVE.																	
17-031-4002	42602	Nitrogen dioxide (NO2)	1	1	716	662	649	694	736	697	663	738	714	740	717	744	8470
Cicero				074	96%	99%	87%	96%	99%	97%	89%	99%	99%	99%	100%	100%	97%
1820 S. 51ST AVE.																	
17-031-4002	44201	Ozone	1	1				716	737	696	711	736	717	742			5055
Cicero				087				99%	99%	97%	96%	99%	100%	100%			98%
1820 S. 51ST AVE.																	
17-031-6003	14129	Lead (TSP) LC	1	7	5	5	5	5	5	5	5	6	5	5	4	5	60
Maywood				043	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	80%	100%	98%
1500 MAYBROOK DR.																	
17-031-6004	42101	Carbon monoxide	1	1	739	666	735	575	737	704	706	738	714	739	715		7768
Maywood				093	99%	99%	99%	80%	99%	98%	95%	99%	99%	99%	99%		89%
1505 S. FIRST AVENUE																	
17-031-6005	88101	PM2.5 - Local Conditions	1	7	9	8	10	10	10	7	10	11	9	10	10	9	113
Cicero				120	90%	89%	91%	100%	100%	70%	100%	100%	90%	100%	100%	90%	93%
13TH ST. & 50TH AVE.																	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2011 THRU DEC. 31, 2011
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: OTHER

SITE ID / CITY / ADDRESS	PARAMETER	POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0022	11101 Suspended particulate (TSP)	2	7	4	5	5	5	5	5	5	6	5	5	5	5	60
Chicago			091	80%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%
3535 E. 114TH ST.																
17-031-0052	11101 Suspended particulate (TSP)	1	7	5	5	5	5	5	5	5	6	5	5	5	5	61
Chicago			091	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4850 WILSON AVE.																

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2011 THRU DEC. 31, 2011
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: UNKNOWN

SITE ID / CITY / ADDRESS	PARAMETER	POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0026	11101 Suspended particulate (TSP)	1	7	5	5	5	5	5	4	5	6	5	5	5	5	60
Chicago			091	100%	100%	100%	100%	100%	80%	100%	100%	100%	100%	100%	100%	98%
735 W. HARRISON																

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

REPORT SUMMARY

DATE RANGE: JAN. 01, 2011 THRU DEC. 31, 2011
REGION: (05) CHICAGO
STATE: Illinois
PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	1	0	1	100.0%
14129	Lead (TSP) LC	5	0	5	98.4%
42101	Carbon monoxide	2	0	2	94.0%
42401	Sulfur dioxide	3	0	3	95.7%
42602	Nitrogen dioxide (NO2)	2	0	2	97.5%
44201	Ozone	7	0	7	98.0%
88101	PM2.5 - Local Conditions	7	0	7	93.6%
MT SUMMARY:	SLAMS	27	0	27	96.4%

MONITOR TYPE: OTHER

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	2	0	2	99.0%
MT SUMMARY:	OTHER	2	0	2	99.0%

MONITOR TYPE: UNKNOWN

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	1	0	1	98.0%
MT SUMMARY:	UNKNOWN	1	0	1	98.0%
PQAO SUMMARY	Cook County Department of Environmental Contrc	30	0	30	96.6%
STATE SUMMARY:	Illinois	30	0	30	96.6%
REGION SUMMARY:	(05) CHICAGO	30	0	30	96.6%
REPORT SUMMARY:		30	0	30	96.6%

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: REA

DATA COMPLETENESS REPORT

Report Request ID: 1149217

Report Code: AMP430

Nov. 13, 2013

PROTOCOL SELECTIONS			
Parameter Classification	Parameter	Method	Duration

CRITERIA

AGENCY SELECTIONS
Cook County Department of Environmental Control

SELECTED OPTIONS	
Option Type	Option Value
OZONE EVALUATION	SEASONAL-HOURLY
AGENCY ROLE	PQAO
MERGE PDF FILES	YES

SORT ORDER	
Order	Column
1	EPA_REGION
2	STATE_CODE
3	MONITOR_TYPE
4	COUNTY_CODE
5	SITE_ID
6	PARAMETER_CODE
7	POC

GLOBAL DATES	
Start Date	End Date
2012 01	2012 12

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS NOT REPORTING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2012 THRU DEC. 31, 2012
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER	POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0001	44201 Ozone	1	1				720	742	719	720	738	706	730			5075
Alsip			056				100%	100%	100%	97%	99%	98%	98%			99%
4500 W. 123RD ST.																
17-031-0022	14129 Lead (TSP) LC	2	7	5	5	5	5	5	5	5	6	5	5	5	4	60
Chicago			043	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	80%	98%
3535 E. 114TH ST.																
17-031-0022	88101 PM2.5 - Local Conditions	1	7	5	5	5	5	4	4	5	5	5	5	5	5	58
Chicago			120	100%	100%	100%	100%	80%	80%	100%	83%	100%	100%	100%	100%	95%
3535 E. 114TH ST.																
17-031-0026	14129 Lead (TSP) LC	1	7	4	5	5	5	5	4	5	6	5	5	5	4	58
Chicago			043	80%	100%	100%	100%	100%	80%	100%	100%	100%	100%	100%	80%	95%
735 W. HARRISON																
17-031-0032	44201 Ozone	1	1				720	703	720	739	736	712	734			5064
Chicago			056				100%	94%	100%	99%	99%	99%	99%			99%
3300 E. CHELTENHAM PL.																
17-031-0052	14129 Lead (TSP) LC	1	7	5	5	5	5	5	5	4	5	5	5	5	5	59
Chicago			043	100%	100%	100%	100%	100%	100%	80%	83%	100%	100%	100%	100%	97%
4850 WILSON AVE.																
17-031-0052	88101 PM2.5 - Local Conditions	1	7	30	28	31	30	31	30	27	31	29	30	27	31	355
Chicago			120	97%	97%	100%	100%	100%	100%	87%	100%	97%	97%	90%	100%	97%
4850 WILSON AVE.																
17-031-0057	88101 PM2.5 - Local Conditions	1	7	7	9	11	10	10	10	10	11	10	8	10	10	116
Chicago			120	64%	100%	100%	100%	100%	100%	100%	100%	100%	80%	100%	100%	95%
1745 N. SPRINGFIELD																
17-031-0064	44201 Ozone	1	1				718	694	720	739	732	713	727			5043
Chicago			056				100%	93%	100%	99%	98%	99%	98%			98%
5720 S. ELLIS AVE																
17-031-0076	42401 Sulfur dioxide	1	1	744	696	744	720	735	206	691	731	617	733	695	728	8040
Chicago			061	100%	100%	100%	100%	99%	29%	93%	98%	86%	99%	97%	98%	92%
7801 LAWNDALE																

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2012 THRU DEC. 31, 2012
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0076	42602	Nitrogen dioxide (NO2)	1	1	744	693	737	520	743	128	679	738	486	442	694	724	7328
Chicago				074	100%	100%	99%	72%	100%	18%	91%	99%	68%	59%	96%	97%	83%
7801 LAWNDALE																	
17-031-0076	44201	Ozone	1	1				719	744	714	704	709	615	684			4889
Chicago				087				100%	100%	99%	95%	95%	85%	92%			95%
7801 LAWNDALE																	
17-031-0076	88101	PM2.5 - Local Conditions	1	7	10	7	6	9	9	10	8	11	7	8	8	8	101
Chicago				120	91%	78%	55%	90%	90%	100%	80%	100%	70%	80%	80%	80%	83%
7801 LAWNDALE																	
17-031-0110	11101	Suspended particulate (TSP)	1	7	11	7	11	10	6	11	4	6	5	5	5	5	86
Chicago				091	100%	100%	100%	100%	100%	100%	80%	100%	100%	100%	100%	100%	100%
1241 19th St.																	
17-031-0110	14129	Lead (TSP) LC	1	7	5	5	5	5	4	5	4	6	5	5	5	5	59
Chicago				000	100%	100%	100%	100%	80%	100%	80%	100%	100%	100%	100%	100%	97%
1241 19th St.																	
17-031-1003	44201	Ozone	2	1				719	744	645	744	516	446	739			4553
Chicago				087				100%	100%	90%	100%	69%	62%	99%			89%
6545 W. HURLBUT ST.																	
17-031-1601	42401	Sulfur dioxide	1	1	742	692	744	717	743	718	742	737	462	738	714	741	8490
Lemont				061	100%	99%	100%	100%	100%	100%	100%	99%	64%	99%	99%	100%	97%
729 HOUSTON																	
17-031-1601	44201	Ozone	1	1				715	742	699	742	738	653	567			4856
Lemont				087				99%	100%	97%	100%	99%	91%	76%			95%
729 HOUSTON																	
17-031-2001	88101	PM2.5 - Local Conditions	1	7	11	9	11	8	10	10	10	9	10	10	10	10	118
Blue Island				120	100%	100%	100%	80%	100%	100%	100%	82%	100%	100%	100%	100%	97%
12700 SACRAMENTO																	
17-031-3301	88101	PM2.5 - Local Conditions	1	7	11	9	11	10	10	10	10	11	10	10	10	10	122
Summit				120	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
60TH ST. & 74TH AVE.																	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
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Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2012 THRU DEC. 31, 2012
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

SITE ID / CITY / ADDRESS	PARAMETER		POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-4002	42101	Carbon monoxide	1	1	744	693	737	718	743	715	733	740	715	738	713	740	8729
Cicero				093	100%	100%	99%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%
1820 S. 51ST AVE.																	
17-031-4002	42401	Sulfur dioxide	1	1				661		500	731	736	714	737	705	742	5526
Cicero				100				92%		69%	98%	99%	99%	99%	98%	100%	63%
1820 S. 51ST AVE.																	
17-031-4002	42602	Nitrogen dioxide (NO2)	1	1	742	683	701	719	739	718	721	739	638	717	241		7358
Cicero				074	100%	98%	94%	100%	99%	100%	97%	99%	89%	96%	33%		84%
1820 S. 51ST AVE.																	
17-031-4002	44201	Ozone	1	1				720	742	680	699	679	715	731			4966
Cicero				087				100%	100%	94%	94%	91%	99%	98%			97%
1820 S. 51ST AVE.																	
17-031-6003	14129	Lead (TSP) LC	1	7	5	5	5	4	5	5	4	6	5	5	5	5	59
Maywood				043	100%	100%	100%	80%	100%	100%	80%	100%	100%	100%	100%	100%	97%
1500 MAYBROOK DR.																	
17-031-6004	42101	Carbon monoxide	1	1		634	738	715	304		437	735	465		693	560	5281
Maywood				093		91%	99%	99%	41%		59%	99%	65%		96%	75%	60%
1505 S. FIRST AVENUE																	
17-031-6005	88101	PM2.5 - Local Conditions	1	7	10	9	11	10	10	10	4	10	9	9	10	9	111
Cicero				120	91%	100%	100%	100%	100%	100%	40%	91%	90%	90%	100%	90%	91%
13TH ST. & 50TH AVE.																	

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AIR QUALITY SYSTEM
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Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2012 THRU DEC. 31, 2012
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: OTHER

SITE ID / CITY / ADDRESS	PARAMETER	POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0022	11101 Suspended particulate (TSP)	2	7	5	5	5	5	5	5	5	6	5	5	5	4	60
Chicago			091	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	80%	98%
3535 E. 114TH ST.																
17-031-0052	11101 Suspended particulate (TSP)	1	7	5	5	5	5	5	5	4	5	5	5	5	5	59
Chicago			091	100%	100%	100%	100%	100%	100%	80%	83%	100%	100%	100%	100%	97%
4850 WILSON AVE.																

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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DATA COMPLETENESS REPORT

Nov. 13, 2013

MONITORS REPORTING

DATE RANGE: JAN. 01, 2012 THRU DEC. 31, 2012
REGION: (05) CHICAGO
STATE: Illinois

PQAO: Cook County Department of Environmental Control
MONITOR TYPE: UNKNOWN

SITE ID / CITY / ADDRESS	PARAMETER	POC	DURATION / METHOD	OBSERVATIONS NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
17-031-0026	11101 Suspended particulate (TSP)	1	7	4	5	5	5	5	4	5	6	5	5	5	4	58
Chicago			091	80%	100%	100%	100%	100%	80%	100%	100%	100%	100%	100%	80%	95%
735 W. HARRISON																

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Nov. 13, 2013

REPORT SUMMARY

DATE RANGE: JAN. 01, 2012 THRU DEC. 31, 2012
REGION: (05) CHICAGO
STATE: Illinois
PQAO: Cook County Department of Environmental Control
MONITOR TYPE: SLAMS

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	1	0	1	100.0%
14129	Lead (TSP) LC	5	0	5	96.8%
42101	Carbon monoxide	2	0	1	79.5%
42401	Sulfur dioxide	3	0	2	84.0%
42602	Nitrogen dioxide (NO2)	2	0	2	83.5%
44201	Ozone	7	0	7	96.0%
88101	PM2.5 - Local Conditions	7	0	7	94.0%
MT SUMMARY:	SLAMS	27	0	25	92.3%

MONITOR TYPE: OTHER

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	2	0	2	97.5%
MT SUMMARY:	OTHER	2	0	2	97.5%

MONITOR TYPE: UNKNOWN

PARAMETER		ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
11101	Suspended particulate (TSP)	1	0	1	95.0%
MT SUMMARY:	UNKNOWN	1	0	1	95.0%
PQAO SUMMARY	Cook County Department of Environmental Contrc	30	0	28	92.7%
STATE SUMMARY:	Illinois	30	0	28	92.7%
REGION SUMMARY:	(05) CHICAGO	30	0	28	92.7%
REPORT SUMMARY:		30	0	28	92.7%

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: REA

DATA QUALITY INDICATOR REPORT

Report Request ID: 1149213

Report Code: AMP255

Nov. 13, 2013

PROTOCOL SELECTIONS			
Parameter Classification	Parameter	Method	Duration
APP_A_PARAMETERS			

AGENCY SELECTIONS
Cook County Department of Environmental Control

SELECTED OPTIONS	
Option Type	Option Value
MERGE PDF FILES	YES
INCLUDE ONLY APPENDIX A MONITORS	NO
RESTRICT TO MONITORING SEASONS	YES

GLOBAL DATES	
Start Date	End Date
2011 01 01	2013 06 30

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Nov. 13, 2013

Notes About this Report

For specific information about the fields appearing within this report, please refer to the README.txt file that is included with the WORKFILE output for this report.

M

If you see this value for a column in a summarized row, this means that more than one occurence exist in the summary. For example, if you have a PQAO summary that spans multiple States, you would see this value in the States column.

Code Listing

The following codes may be seen in the "MT" column throughout this report. Please be advised that not all of the codes may appear in the report. They are provided for completeness.

Code	Description
NR	NON-REGULATORY
F	EPA
T	TRIBAL MONITORS
I	IMPROVE
IX	INDEX SITE
N	NAMS
CN	CASTNET
O	OTHER
ST	SCHOOL AIR TOXICS
QA	QA COLLOCATED
SS	SLAMS SPECIATION
SU	SUPPLMNTL SPECIATION
U	UNKNOWN
W	WHO
	SPM - OTHER

Code	Description
S	SLAMS
P	PAMS
SP	SPECIAL PURPOSE
NC	NCORE
ID	INDUSTRIAL
NA	NATTS
F	NON-EPA FEDERAL
PN	PROPOSED NCORE
VS	VOL SCHOOL AT
X	SECURED
SU	SUPLMNTL SPECIATION
TS	TRENDS SPECIATION
UP	UNOFFICIAL PAMS
M	WMO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Nov. 13, 2013

1-Point Quality Control

Pollutant: CO **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	% Complete	CV	Bias
2011	05	IL	17-031-4002	1	S	01-JAN-11	31-DEC-11	26	30	100	1.78	- 2.71
2011	05	IL	17-031-6004	1	S	01-JAN-11	31-DEC-11	26	44	100	1.36	- 2.25
2011	05	IL	**SUMMARY**					52	74	100	1.45	- 2.34
2012	05	IL	17-031-4002	1	S	01-JAN-12	31-DEC-12	26	15	58	3.71	- 3.46
2012	05	IL	17-031-6004	1	S	01-JAN-12	31-DEC-12	26	13	50	3.76	+ 2.63
2012	05	IL	**SUMMARY**					52	28	54	3.53	- 2.71
SUMMARY	05	IL						104	102	77	2.10	- 2.63

Pollutant: NO2 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	% Complete	CV	Bias
2011	05	IL	17-031-0076	1	S	01-JAN-11	31-DEC-11	26	30	100	4.48	+ 3.96
2011	05	IL	17-031-4002	1	S	01-JAN-11	31-DEC-11	26	31	100	3.96	+ 4.84
2011	05	IL	**SUMMARY**					52	61	100	4.09	+ 4.17
2012	05	IL	17-031-0076	1	S	01-JAN-12	31-DEC-12	26	11	42	6.01	+ 5.71
2012	05	IL	17-031-4002	1	S	01-JAN-12	31-DEC-12	26	8	31	3.40	+ 3.82
2012	05	IL	**SUMMARY**					52	19	37	4.40	+ 4.48
2013	05	IL	17-031-0076	1	S	01-JAN-13	30-JUN-13	12	21	100	3.90	- 3.09
2013	05	IL	17-031-4002	1	S	01-JAN-13	30-JUN-13	12	23	100	4.21	+/- 3.38
2013	05	IL	**SUMMARY**					24	44	100	3.73	+/- 3.01
SUMMARY	05	IL						128	124	79	4.07	+/- 3.56

Pollutant: O3 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	% Complete	CV	Bias
2011	05	IL	17-031-0001	1	S	01-APR-11	31-OCT-11	15	25	100	3.64	+/- 2.95
2011	05	IL	17-031-0032	1	S	01-APR-11	31-OCT-11	15	30	100	4.19	+/- 3.43
2011	05	IL	17-031-0064	1	S	01-APR-11	31-OCT-11	15	28	100	3.88	+ 3.71
2011	05	IL	17-031-0076	1	S	01-APR-11	31-OCT-11	15	20	100	4.15	+/- 3.36

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Nov. 13, 2013

1-Point Quality Control

Pollutant: O3 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	% Complete	CV	Bias
2011	05	IL	17-031-1003	2	S	01-APR-11	31-OCT-11	15	30	100	2.56	- 2.04
2011	05	IL	17-031-1601	1	S	01-APR-11	31-OCT-11	15	22	100	3.19	- 2.73
2011	05	IL	17-031-4002	1	S	01-APR-11	31-OCT-11	15	20	100	1.71	+ 1.49
2011	05	IL	**SUMMARY**					105	175	100	3.19	+/- 2.47
2012	05	IL	17-031-0001	1	S	01-APR-12	31-OCT-12	15	10	67	5.66	+ 5.17
2012	05	IL	17-031-0032	1	S	01-APR-12	31-OCT-12	15	13	87	3.53	+/- 2.77
2012	05	IL	17-031-0064	1	S	01-APR-12	31-OCT-12	15	14	93	5.42	+/- 4.27
2012	05	IL	17-031-0076	1	S	01-APR-12	31-OCT-12	15	11	73	4.98	+/- 4.04
2012	05	IL	17-031-1003	2	S	01-APR-12	31-OCT-12	15	7	47	4.18	+/- 3.03
2012	05	IL	17-031-1601	1	S	01-APR-12	31-OCT-12	15	15	100	3.30	- 2.50
2012	05	IL	17-031-4002	1	S	01-APR-12	31-OCT-12	15	6	40	1.99	+ 1.55
2012	05	IL	**SUMMARY**					105	76	72	3.50	+/- 2.88
2013	05	IL	17-031-0001	1	S	01-APR-13	30-JUN-13	6	12	100	3.47	+ 3.05
2013	05	IL	17-031-0032	1	S	01-APR-13	30-JUN-13	6	11	100	4.02	+/- 2.97
2013	05	IL	17-031-0064	1	S	01-APR-13	30-JUN-13	6	12	100	2.02	- 1.95
2013	05	IL	17-031-0076	1	S	01-APR-13	30-JUN-13	6	13	100	1.44	+ 1.13
2013	05	IL	17-031-1003	2	S	01-APR-13	30-JUN-13	6	13	100	3.67	- 3.91
2013	05	IL	17-031-1601	1	S	01-APR-13	30-JUN-13	6	13	100	2.18	- 4.47
2013	05	IL	17-031-4002	1	S	01-APR-13	30-JUN-13	6	13	100	1.31	+ 1.33
2013	05	IL	**SUMMARY**					42	87	100	2.86	+/- 2.29
SUMMARY	05	IL						252	338	91	3.10	+/- 2.40

Pollutant: SO2 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	% Complete	CV	Bias
2011	05	IL	17-031-0076	1	S	01-JAN-11	31-DEC-11	26	29	100	2.18	+ 1.97
2011	05	IL	17-031-1601	1	S	01-JAN-11	31-DEC-11	26	38	100	3.66	+ 3.32
2011	05	IL	17-031-4002	1	S	01-JAN-11	31-DEC-11	26	30	100	2.43	+/- 2.21

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Nov. 13, 2013

1-Point Quality Control

Pollutant: SO2 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	% Complete	CV	Bias
2011	05	IL	**SUMMARY**					78	97	100	2.70	+ 2.41
2012	05	IL	17-031-0076	1	S	01-JAN-12	31-DEC-12	26	10	38	6.65	+/- 5.03
2012	05	IL	17-031-1601	1	S	01-JAN-12	31-DEC-12	26	27	100	2.81	+/- 2.39
2012	05	IL	17-031-4002	1	S	01-JAN-12	31-DEC-12	26	17	65	3.26	+/- 2.71
2012	05	IL	**SUMMARY**					78	54	68	3.35	+/- 2.66
2013	05	IL	17-031-0076	1	S	01-JAN-13	30-JUN-13	12	24	100	3.60	+/- 2.55
2013	05	IL	17-031-1601	1	S	01-JAN-13	30-JUN-13	12	25	100	2.28	+/- 1.81
2013	05	IL	17-031-4002	1	S	01-JAN-13	30-JUN-13	12	25	100	2.74	+/- 2.16
2013	05	IL	**SUMMARY**					36	74	100	2.60	+/- 1.94
SUMMARY	05	IL						192	225	89	2.74	+/- 2.18

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Nov. 13, 2013

Annual Performance Evaluations

Pollutant: CO **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits Lower	Upper	% Btwn Conf. Limits
2011	05	IL	17-031-4002	1	S	01-JAN-11	31-DEC-11					-5.88	3	0	0	0	Y			
						(Levels 6 thru 10)		-4.76			1.48									
2011	05	IL	17-031-6004	1	S	01-JAN-11	31-DEC-11					-2.94	3	0	0	0	Y			
						(Levels 6 thru 10)		-5.71			-0.25									
2011	05	IL	**SUMMARY**									-4.41	6	0	0	0	100	-4.58	0.48	33
						(Levels 6 thru 10)		-5.24			0.62									
2012	05	IL	17-031-4002	1	S	01-JAN-12	31-DEC-12					-2.04	0	0	0	3	Y			
						(Levels 6 thru 10)		-0.66			2.02									
2012	05	IL	17-031-6004	1	S	01-JAN-12	31-DEC-12													
						(Levels 6 thru 10)														
2012	05	IL	**SUMMARY**									-2.04	0	0	0	3	50	-6.75	4.57	100
						(Levels 6 thru 10)		-0.66			2.02									
SUMMARY	05	IL										-3.62	6	0	0	3	75	-5.52	1.94	67
						(Levels 6 thru 10)		-3.71			2.02	0.62								

Pollutant: NO2 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits Lower	Upper	% Btwn Conf. Limits
2011	05	IL	17-031-0076	1	S	01-JAN-11	31-DEC-11					2.17	0	3	0	0	Y			
						(Levels 6 thru 10)		2.17			0.85									
2011	05	IL	17-031-4002	1	S	01-JAN-11	31-DEC-11					-2.22	3	0	0	0	Y			
						(Levels 6 thru 10)		-1.06			-0.68									

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Pollutant: NO2 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits Lower	Upper	% Btwn Conf. Limits
2011	05	IL	**SUMMARY**									-0.03	3	3	0	0	100	-4.41	9.71	100
							(Levels 6 thru 10)	0.56	0.09											
2012	05	IL	17-031-0076	1	S	01-JAN-12	31-DEC-12													
							(Levels 6 thru 10)													
2012	05	IL	17-031-4002	1	S	01-JAN-12	31-DEC-12													
							(Levels 6 thru 10)													
2012	05	IL	**SUMMARY**														0			
							(Levels 6 thru 10)													
2013	05	IL	17-031-0076	1	S	01-JAN-13	30-JUN-13													
							(Levels 6 thru 10)													
2013	05	IL	17-031-4002	1	S	01-JAN-13	30-JUN-13													
							(Levels 6 thru 10)													
2013	05	IL	**SUMMARY**														0			
							(Levels 6 thru 10)													
SUMMARY	05	IL										-0.03	3	3	0	0	33	-5.75	8.87	100
							(Levels 6 thru 10)	0.56	0.09											

Pollutant: O3 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits Lower	Upper	% Btwn Conf. Limits
2011	05	IL	17-031-0001	1	S	01-APR-11	31-OCT-11				-1.82	-2.67	0	3	0	0	Y			
							(Levels 6 thru 10)	-1.72												

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Pollutant: O3 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits Lower	Upper	% Btwn Conf. Limits
2011	05	IL	17-031-0032	1	S	01-APR-11	31-OCT-11				-1.85	-2.74	0	0	3	0	Y			
							(Levels 6 thru 10)	-1.71												
2011	05	IL	17-031-0064	1	S	01-APR-11	31-OCT-11				-7.46	-8.05	0	3	0	0	Y			
							(Levels 6 thru 10)	-6.49												
2011	05	IL	17-031-0076	1	S	01-APR-11	31-OCT-11				2.38	0.00	0	0	3	0	Y			
							(Levels 6 thru 10)	0.00												
2011	05	IL	17-031-1003	2	S	01-APR-11	31-OCT-11				-1.47	-1.12	0	0	3	0	Y			
							(Levels 6 thru 10)	-2.63												
2011	05	IL	17-031-1601	1	S	01-APR-11	31-OCT-11				-1.72	-1.28	0	3	0	0	Y			
							(Levels 6 thru 10)	0.00												
2011	05	IL	17-031-4002	1	S	01-APR-11	31-OCT-11				-3.51	-1.28	0	0	3	0	Y			
							(Levels 6 thru 10)	-4.55												
2011	05	IL	**SUMMARY**								-2.21	-2.45	0	9	12	0	100	-5.55	6.07	86
							(Levels 6 thru 10)	-2.75												
2012	05	IL	17-031-0001	1	S	01-APR-12	31-OCT-12				1.89		0	0	0	2	N			
							(Levels 6 thru 10)					-2.87								
2012	05	IL	17-031-0032	1	S	01-APR-12	31-OCT-12				-1.64		0	0	0	2	N			
							(Levels 6 thru 10)					-0.46								
2012	05	IL	17-031-0064	1	S	01-APR-12	31-OCT-12				1.82		0	0	0	2	N			
							(Levels 6 thru 10)					-1.44								
2012	05	IL	17-031-0076	1	S	01-APR-12	31-OCT-12				0.00		0	0	0	2	N			

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Pollutant: O3 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits Lower	Upper	% Btwn Conf. Limits
							(Levels 6 thru 10)					0.99								
2012	05	IL	17-031-1003	2	S	01-APR-12	31-OCT-12				1.82		0	0	0	2	N			
							(Levels 6 thru 10)					1.80								
2012	05	IL	17-031-1601	1	S	01-APR-12	31-OCT-12				3.57		0	0	0	2	N			
							(Levels 6 thru 10)					4.69								
2012	05	IL	17-031-4002	1	S	01-APR-12	31-OCT-12				0.00		0	0	0	2	N			
							(Levels 6 thru 10)					2.37								
2012	05	IL	**SUMMARY**								1.07		0	0	0	14	0	-5.54	6.70	100
							(Levels 6 thru 10)					0.85								
2013	05	IL	17-031-0001	1	S	01-APR-13	30-JUN-13													
							(Levels 6 thru 10)													
2013	05	IL	17-031-0032	1	S	01-APR-13	30-JUN-13													
							(Levels 6 thru 10)													
2013	05	IL	17-031-0064	1	S	01-APR-13	30-JUN-13					0.00	0	2	0	0	N			
							(Levels 6 thru 10)					4.09								
2013	05	IL	17-031-0076	1	S	01-APR-13	30-JUN-13					5.00	0	2	0	0	N			
							(Levels 6 thru 10)					2.27								
2013	05	IL	17-031-1003	2	S	01-APR-13	30-JUN-13					8.86	0	2	0	0	N			
							(Levels 6 thru 10)					4.55								
2013	05	IL	17-031-1601	1	S	01-APR-13	30-JUN-13					5.06	0	2	0	0	N			

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Pollutant: O3 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	1-Point Criteria Met?	Conf. Limits Lower	Conf. Limits Upper	% Btwn Conf. Limits
								(Levels 6 thru 10)				0.91								
2013	05	IL	17-031-4002	1	S	01-APR-13	30-JUN-13					5.00	0	2	0	0	N			
								(Levels 6 thru 10)				2.73								
2013	05	IL	**SUMMARY**									4.78	0	10	0	0	0	-5.80	4.28	60
								(Levels 6 thru 10)				2.91								
SUMMARY	05	IL									-0.67	0.57	0	19	12	14	33	-5.69	5.83	91
								(Levels 6 thru 10)	-2.78			1.71								

Pollutant: SO2 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	1-Point Criteria Met?	Conf. Limits Lower	Conf. Limits Upper	% Btwn Conf. Limits
2011	05	IL	17-031-0076	1	S	01-JAN-11	31-DEC-11						0	3	0	0	Y			
								(Levels 6 thru 10)	3.75	2.74	0.00									
2011	05	IL	17-031-1601	1	S	01-JAN-11	31-DEC-11						3	0	0	0	Y			
								(Levels 6 thru 10)	2.44	0.85	-4.31									
2011	05	IL	17-031-4002	1	S	01-JAN-11	31-DEC-11						3	0	0	0	Y			
								(Levels 6 thru 10)	4.68	1.69	0.00									
2011	05	IL	**SUMMARY**										6	3	0	0	100	-3.62	5.96	89
								(Levels 6 thru 10)	3.69	1.76	-1.44									
2012	05	IL	17-031-0076	1	S	01-JAN-12	31-DEC-12													
								(Levels 6 thru 10)												

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Annual Performance Evaluations

Pollutant: SO2 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1/6	L2/7	L3/8	L4/9	L5/10	Obs / Q Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits Lower	Upper	% Btwn Conf. Limits
2012	05	IL	17-031-1601	1	S	01-JAN-12	31-DEC-12						0	0	0	3	Y			
							(Levels 6 thru 10)	4.76		6.98	5.88									
2012	05	IL	17-031-4002	1	S	01-JAN-12	31-DEC-12						0	0	3	0	Y			
							(Levels 6 thru 10)	3.57		7.44	12.24									
2012	05	IL	**SUMMARY**										0	0	3	3	67	-5.65	5.81	33
							(Levels 6 thru 10)	4.17		7.21	9.06									
2013	05	IL	17-031-0076	1	S	01-JAN-13	30-JUN-13						0	3	0	0	Y			
							(Levels 6 thru 10)	5.95		6.22	8.83									
2013	05	IL	17-031-1601	1	S	01-JAN-13	30-JUN-13						3	0	0	0	Y			
							(Levels 6 thru 10)	-2.38		-1.33	-2.15									
2013	05	IL	17-031-4002	1	S	01-JAN-13	30-JUN-13						0	3	0	0	Y			
							(Levels 6 thru 10)	-2.38		-2.67	-3.34									
2013	05	IL	**SUMMARY**										3	6	0	0	100	-4.42	4.66	67
							(Levels 6 thru 10)	-3.57		-3.41	-4.77									
SUMMARY	05	IL											9	9	3	3	89	-4.48	5.60	71
							(Levels 6 thru 10)	1.09	1.76	-0.01	0.76									

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Flow Rate Verifications

Pollutant: LEAD **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	Average % D	% Complete	Bias
2011	05	IL	17-031-0022	2	S	01-JAN-11	31-DEC-11	4	10	-2.85	100	- 7.34
2011	05	IL	17-031-0026	1	S	01-JAN-11	31-DEC-11	4	9	4.11	100	+ 8.93
2011	05	IL	17-031-0052	1	S	01-JAN-11	31-DEC-11	4	5	1.47	100	+ 4.88
2011	05	IL	17-031-0110	1	S	01-JAN-11	31-DEC-11	4	4	-1.60	100	+/- 8.92
2011	05	IL	17-031-6003	1	S	01-JAN-11	31-DEC-11	4	8	4.77	100	+ 7.79
2011	05	IL	**SUMMARY**					20	36	1.32	100	+/- 6.37
2012	05	IL	17-031-0022	2	S	01-JAN-12	31-DEC-12	4	10	1.87	100	+/- 6.24
2012	05	IL	17-031-0026	1	S	01-JAN-12	31-DEC-12	4	9	1.36	100	+/- 4.03
2012	05	IL	17-031-0052	1	S	01-JAN-12	31-DEC-12	4	10	-0.62	100	+/- 6.74
2012	05	IL	17-031-0110	1	S	01-JAN-12	31-DEC-12	4	9	5.66	100	+ 10.71
2012	05	IL	17-031-6003	1	S	01-JAN-12	31-DEC-12	4	12	6.03	100	+/- 14.42
2012	05	IL	**SUMMARY**					20	50	2.96	100	+/- 7.39
2013	05	IL	17-031-0022	2	S	01-JAN-13	30-JUN-13	2	3	-4.26	100	- 9.70
2013	05	IL	17-031-0022	9	S	01-JAN-13	31-MAR-13	1	1	-2.34	100	
2013	05	IL	17-031-0026	1	S	01-JAN-13	31-MAR-13	1	1	-0.79	100	
2013	05	IL	17-031-0052	1	S	01-JAN-13	31-MAR-13	1	1	-1.96	100	
2013	05	IL	17-031-0110	1	S	01-JAN-13	30-JUN-13	2	3	1.08	100	+/- 4.65
2013	05	IL	17-031-6003	1	S	01-JAN-13	30-JUN-13	2	3	-2.28	100	+/- 5.90
2013	05	IL	17-031-6003	9	S	01-JAN-13	31-MAR-13	1	2	-7.58	100	- 9.73
2013	05	IL	**SUMMARY**					11	14	-2.62	88	+/- 4.75
SUMMARY	05	IL						51	100	1.59	94	+/- 6.24

Pollutant: PM2.5 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	Average % D	% Complete	Bias
2012	05	IL	17-031-0022	1	S	01-JAN-12	31-DEC-12	12	10	-1.12	83	- 2.01
2012	05	IL	17-031-0052	1	S	01-JAN-12	31-DEC-12	12	11	-0.69	92	- 0.97
2012	05	IL	17-031-0057	1	S	01-JAN-12	31-DEC-12	12	7	0.51	58	+/- 0.88
2012	05	IL	17-031-0076	1	S	01-JAN-12	31-DEC-12	12	8	-1.19	67	- 1.66
2012	05	IL	17-031-2001	1	S	01-JAN-12	31-DEC-12	12	10	0.03	83	+/- 0.45
2012	05	IL	17-031-3301	1	S	01-JAN-12	31-DEC-12	12	9	-0.08	75	+/- 1.22
2012	05	IL	17-031-6005	1	S	01-JAN-12	31-DEC-12	12	10	0.59	83	+/- 2.35
2012	05	IL	**SUMMARY**					84	65	-0.30	77	+/- 1.13

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Flow Rate Verifications

Pollutant: PM2.5 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	Average % D	% Complete	Bias
2013	05	IL	17-031-0001	1	S	01-APR-13	30-JUN-13	3	3	-0.97	100	- 1.96
2013	05	IL	17-031-0022	1	S	01-JAN-13	30-JUN-13	6	6	2.38	100	+ 5.10
2013	05	IL	17-031-0022	9	S	01-APR-13	30-JUN-13	3	3	4.81	100	+ 8.46
2013	05	IL	17-031-0052	1	S	01-JAN-13	30-JUN-13	6	5	-0.39	83	+/- 1.02
2013	05	IL	17-031-0052	9	S	01-JAN-13	31-MAR-13	3	4	1.38	100	+/- 3.52
2013	05	IL	17-031-0057	1	S	01-JAN-13	30-JUN-13	6	6	1.45	100	+ 2.27
2013	05	IL	17-031-0076	1	S	01-JAN-13	30-JUN-13	6	7	-1.85	100	+/- 3.16
2013	05	IL	17-031-2001	1	S	01-JAN-13	31-MAR-13	3	3	-0.12	100	+/- 0.45
2013	05	IL	17-031-3301	1	S	01-JAN-13	30-JUN-13	6	7	0.31	100	+/- 1.27
2013	05	IL	17-031-3301	9	S	01-JAN-13	31-MAR-13	3	3	1.26	100	+/- 6.24
2013	05	IL	17-031-6005	1	S	01-JAN-13	30-JUN-13	6	6	1.91	100	+/- 6.75
2013	05	IL	**SUMMARY**					51	53	0.79	98	+/- 2.38
SUMMARY	05	IL						219	118	0.19	65	+/- 1.62

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Semi-Annual Flow Rate Audits

Pollutant: LEAD **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	#Q w/ Data	% Complete	Criteria Met?	Obs / Q Q1	Q2	Q3	Q4	Avg %d	Flow Rate Conf. Limits Lower	Upper	% Between Conf. Limits
2011	05	IL	17-031-0022	2	S	01-JAN-11	31-DEC-11	2	2	100	Y	1	0	1	0	6.8			
2011	05	IL	17-031-0026	1	S	01-JAN-11	31-DEC-11	2	2	100	Y	1	0	1	0	5.2			
2011	05	IL	17-031-0052	1	S	01-JAN-11	31-DEC-11	2	2	100	Y	1	0	1	0	2.0			
2011	05	IL	17-031-0110	1	S	01-JAN-11	31-DEC-11	2	2	100	Y	1	0	0	1	6.1			
2011	05	IL	17-031-6003	1	S	01-JAN-11	31-DEC-11	2	2	100	Y	1	0	0	1	1.2			
2011	05	IL	**SUMMARY**					10	10	100	100	5	0	3	2	4.3	-11.07	13.71	100
2012	05	IL	17-031-0022	2	S	01-JAN-12	31-DEC-12	2	2	100	Y	0	1	0	1	1.0			
2012	05	IL	17-031-0026	1	S	01-JAN-12	31-DEC-12	2	2	100	Y	0	2	0	1	-7.8			
2012	05	IL	17-031-0052	1	S	01-JAN-12	31-DEC-12	2	2	100	Y	0	1	0	1	1.1			
2012	05	IL	17-031-0110	1	S	01-JAN-12	31-DEC-12	2	2	100	Y	0	1	0	1	-0.9			
2012	05	IL	17-031-6003	1	S	01-JAN-12	31-DEC-12	2	1	50	N	0	0	0	1	4.2			
2012	05	IL	**SUMMARY**					10	9	90	80	0	5	0	5	-1.7	-12.47	18.39	100
2013	05	IL	17-031-0022	2	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	1	0	0	-3.9			
2013	05	IL	17-031-0022	9	S	01-JAN-13	31-MAR-13	1	0	0	N								
2013	05	IL	17-031-0026	1	S	01-JAN-13	31-MAR-13	1	0	0	N								
2013	05	IL	17-031-0052	1	S	01-JAN-13	31-MAR-13	1	0	0	N								
2013	05	IL	17-031-0110	1	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	1	0	0	2.0			
2013	05	IL	17-031-0110	9	S	01-APR-13	30-JUN-13	1	1	100	Y	0	1	0	0	4.2			
2013	05	IL	17-031-6003	1	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	1	0	0	6.4			
2013	05	IL	17-031-6003	9	S	01-JAN-13	31-MAR-13	1	0	0	N								
2013	05	IL	**SUMMARY**					8	4	50	50	0	4	0	0	2.2	-9.55	4.31	75
SUMMARY	05	IL						28	23	75	72	5	9	3	7	1.4	-12.26	15.44	100

Pollutant: PM2.5 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	#Q w/ Data	% Complete	Criteria Met?	Obs / Q Q1	Q2	Q3	Q4	Avg %d	Flow Rate Conf. Limits Lower	Upper	% Between Conf. Limits
2011	05	IL	17-031-0022	1	S	01-JAN-11	31-DEC-11	2	4	100	Y	1	1	2	2	-0.4			
2011	05	IL	17-031-0052	1	S	01-JAN-11	31-DEC-11	2	4	100	Y	1	2	3	4	-0.2			
2011	05	IL	17-031-0057	1	S	01-JAN-11	31-DEC-11	2	3	100	Y	1	1	2	0	-0.3			
2011	05	IL	17-031-0076	1	S	01-JAN-11	31-DEC-11	2	4	100	Y	1	1	2	2	0.1			
2011	05	IL	17-031-2001	1	S	01-JAN-11	31-DEC-11	2	3	100	Y	1	1	2	0	0.3			

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Semi-Annual Flow Rate Audits

Pollutant: PM2.5 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	#Q w/ Data	% Complete	Criteria Met?	Obs / Q Q1	Q2	Q3	Q4	Avg %d	Flow Rate Conf. Limits Lower	Upper	% Between Conf. Limits
2011	05	IL	17-031-3301	1	S	01-JAN-11	31-DEC-11	2	4	100	Y	1	1	2	2	1.5			
2011	05	IL	17-031-6005	1	S	01-JAN-11	31-DEC-11	2	3	100	Y	1	1	2	0	-0.2			
2011	05	IL	**SUMMARY**					14	25	100	100	7	8	15	10	0.1			0
2012	05	IL	17-031-0022	1	S	01-JAN-12	31-DEC-12	2	1	50	N	0	0	0	1	0.7			
2012	05	IL	17-031-0052	1	S	01-JAN-12	31-DEC-12	2	1	50	N	0	0	0	1	0.4			
2012	05	IL	17-031-0057	1	S	01-JAN-12	31-DEC-12	2	1	50	N	0	0	0	1	1.7			
2012	05	IL	17-031-0076	1	S	01-JAN-12	31-DEC-12	2	1	50	N	0	0	0	1	-1.8			
2012	05	IL	17-031-2001	1	S	01-JAN-12	31-DEC-12	2	1	50	N	0	0	0	1	-0.1			
2012	05	IL	17-031-3301	1	S	01-JAN-12	31-DEC-12	2	1	50	N	0	0	0	1	-0.3			
2012	05	IL	17-031-6005	1	S	01-JAN-12	31-DEC-12	2	1	50	N	0	0	0	1	-2.7			
2012	05	IL	**SUMMARY**					14	7	50	0	0	0	0	7	-0.3	-2.78	2.18	100
2013	05	IL	17-031-0001	1	S	01-APR-13	30-JUN-13	1	1	100	Y	0	2	0	0	-3.9			
2013	05	IL	17-031-0022	1	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	1	0	0	1.6			
2013	05	IL	17-031-0022	9	S	01-APR-13	30-JUN-13	1	0	0	N								
2013	05	IL	17-031-0052	1	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	1	0	0	-2.6			
2013	05	IL	17-031-0052	9	S	01-JAN-13	31-MAR-13	1	0	0	N								
2013	05	IL	17-031-0057	1	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	2	0	0	-0.8			
2013	05	IL	17-031-0076	1	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	1	0	0	-4.3			
2013	05	IL	17-031-2001	1	S	01-JAN-13	31-MAR-13	1	0	0	N								
2013	05	IL	17-031-3301	1	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	2	0	0	-3.8			
2013	05	IL	17-031-3301	9	S	01-JAN-13	31-MAR-13	1	0	0	N								
2013	05	IL	17-031-6005	1	S	01-JAN-13	30-JUN-13	1	1	100	Y	0	2	0	0	3.8			
2013	05	IL	**SUMMARY**					11	7	64	64	0	11	0	0	-1.3	-4.67	6.25	73
SUMMARY	05	IL						39	39	70	56	7	19	15	17	-0.2	-4.02	4.40	93

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Nov. 13, 2013

Collocation Detail

Pollutant: LEAD **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Method	Region	State	Site ID	Parameter Code	POC	MT	Begin Date	End Date	# Req	# Obs	# Valid	% Complete	CV
2011		05	IL	17-031-0022	14129	2	S	01-JAN-11	31-DEC-11	30	55	34	100	12.93
2011		05	IL	17-031-6003	14129	1	S	01-JAN-11	31-DEC-11	30	58	25	100	18.20
2012		05	IL	17-031-0022	14129	2	S	01-JAN-12	31-DEC-12	30	54	42	100	11.30
2012		05	IL	17-031-6003	14129	1	S	01-JAN-12	31-DEC-12	30	50	33	100	13.59
2013		05	IL	17-031-0022	14129	2	S	01-JAN-13	30-JUN-13	15	15	7	100	19.70
2013		05	IL	17-031-0110	14129	1	S	01-JAN-13	30-JUN-13	15	14	8	93	13.99
2013		05	IL	17-031-6003	14129	1	S	01-JAN-13	30-JUN-13	15	13	3	87	57.66

Pollutant: PM2.5 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Method	Region	State	Site ID	Parameter Code	POC	MT	Begin Date	End Date	# Req	# Obs	# Valid	% Complete	CV
2011	120	05	IL	17-031-0052	88101	1	S	03-JAN-11	31-DEC-11	30	57	53	100	12.51
2011	120	05	IL	17-031-3301	88101	1	S	03-JAN-11	29-DEC-11	30	57	56	100	10.61
2012	120	05	IL	17-031-0052	88101	1	S	01-JAN-12	31-DEC-12	30	56	53	100	13.39
2012	120	05	IL	17-031-3301	88101	1	S	01-JAN-12	29-DEC-12	30	47	45	100	11.90
2013	120	05	IL	17-031-0022	88101	1	S	04-JAN-13	30-JUN-13	14	11	11	79	38.11
2013	120	05	IL	17-031-0052	88101	1	S	01-JAN-13	30-JUN-13	15	13	13	87	24.40
2013	120	05	IL	17-031-3301	88101	1	S	01-JAN-13	30-JUN-13	15	18	17	100	5.32

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Collocation Summary

Pollutant: LEAD **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Method	Region	State	# Sites	# Collocated Required	# Actually Collocated	% Req. Sites Collocated	# Req	# Obs	# Valid Obs	% Complete	CV
2011		05	IL	5	1	2	100	30	113	59	100	14.33
2012		05	IL	5	1	2	100	30	104	75	100	11.69
2013		05	IL	5	1	3	100	30	42	18	100	15.30
SUMMARY		05	IL				100			152	100	12.52

Pollutant: PM2.5 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Method	Region	State	# Sites	# Collocated Required	# Actually Collocated	% Req. Sites Collocated	# Req	# Obs	# Valid Obs	% Complete	CV
2011	120	05	IL	7	1	2	100	30	114	109	100	11.39
2011	**SUMMARY**	05	IL				100			109	100	11.39
2012	120	05	IL	7	1	2	100	30	103	98	100	12.67
2012	**SUMMARY**	05	IL				100			98	100	12.67
2013	117	05	IL	1	1	0	0	30	0	0	0	
2013	120	05	IL	8	1	3	100	30	42	41	100	23.24
2013	**SUMMARY**	05	IL				50			41	50	23.24
SUMMARY		05	IL				75			248	75	13.61

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Nov. 13, 2013

Performance Evaluation Program (PEP)

Pollutant: LEAD **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	# Sites	#PEP Required	# PEP Collected	# Collocated PEP Req	# Collocated PEP Coll.	% Complete	Bias	Conf. Limits Lower	Conf. Limits Upper
2011	05	IL	5	1	4	4	0	80	+/- 63.46	-89.07	87.85
2012	05	IL	5	1	2	4	0	40	+/- 143.19	-22.40	78.64
2013	05	IL	5	1	0	4	0	0			
SUMMARY	05	IL						40	+/- 50.02	-68.83	86.75

Pollutant: PM2.5 **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

Year	Region	State	# Sites	#PEP Required	# PEP Collected	# Collocated PEP Req	# Collocated PEP Coll.	% Complete	Bias	Conf. Limits Lower	Conf. Limits Upper
2011	05	IL	7	8	2	0	0	25	- 2.25	-23.15	18.65
2012	05	IL	7	8	18	0	0	100	- 2.06	-3.75	-0.37
2013	05	IL	8	8	4	0	0	50	- 0.58	-9.04	7.88
SUMMARY	05	IL						58	- 1.63	-5.42	-0.24

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Nov. 13, 2013

Audit Strip Analysis

Pollutant: LEAD **PQAO:** 0258 (Cook County Department of Environmental Control) **App A?:** Yes

				% Completeness						
Year	Region	State	Lab Id	Q1	Q2	Q3	Q4	Year		Bias
2011	05	IL	0258	67	100	100	100	92	+/-	8.95
2012	05	IL	0258	83	100	100	100	96	+/-	32.67
2013	05	IL	0258	100	100	0	0	50	+/-	27.73
SUMMARY	05	IL	0258	83	100	67	67	79	+/-	19.91